Forest Practices Board

Access Management and Resource Roads: 2015 Update

Special Report

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Executive Summary

Natural resource industries require access to the places they work. This almost always means a road. Those roads also provide access to the 'back country' for the public, First Nations and many other commercial interests (e.g., ranching and adventure tourism). However, the roads themselves, and the human access they provide, arguably cause the most significant negative environmental effects of natural resource development, such as landslides, siltation of streams, alteration of natural drainage patterns and the loss and degradation of wildlife habitat. The Board believes that it is time to take action to improve management of the multi-billion dollar asset represented by BC's resource roads.

After more than a century of forestry, oil and gas and mining activities, there are over 600 000 kilometres of resource road in BC (enough to drive from Vancouver to Halifax and back 50 times). This enormous legacy is growing—on the order of 10 000 kilometres is being added every year. Over 75 percent of resource roads were built by the forest industry. Most of the remainder were built by the oil and gas industry in northeastern BC. A small, but significant, amount was built by other industries, notably the mining industry. Over half the resource roads are not being maintained. Much of that unmaintained road has been deactivated, but there is still potential for some of those roads to cause environmental damage and some continue to provide unintended access.

In 2005, the Board reported on the state of access management in BC. The Board identified issues that reduced government's ability to provide positive benefits and prevent negative effects of resource roads. While there has been some progress in the intervening decade, many of the issues remain. These issues, discussed below, apply to both the legacy of existing roads and to the roads that are being built (and deactivated) today.

> ***"To build a road is so much simpler than to think of what the country really needs."***
>
> Aldo Leopold
> A Sand County Almanac
> 1949

Inventory

Good management relies on good information. Unfortunately, government's information about resource roads is poor. Current information about forestry and oil and gas roads consists largely of records of permits to construct roads—not reports of actual roads built—and maps of actual roads are substantially out of date for most of the province. For this report, the Board cobbled together a picture of roads in the province that is as complete as possible.

Government is working on developing a resource road information system, but that system will not be implemented for several years and it depends on passing and bringing into force the proposed Natural Resource Roads Act.

> The Board recommends that government improve the current information on resource roads by providing a website that allows collaborative editing of content (a wiki); both to enable government staff and to engage the public in providing current information about road location and status.

Strategic Management

There is currently no agency charged with conducting access planning. There are virtually no proactive legal tools for setting access objectives. There is no legal requirement to notify the public about changes in access. Government provides encouragement to undertake local planning solutions, but offers virtually no support. There are no formal mechanisms for resolving access conflicts and there is little motivation for stakeholders to compromise. The result is that access decisions can become politicized. The Board notes that the proposed Natural Resource Roads Act is not intended to solve these strategic access management issues.

> **The Board recommends** a regulation bringing into force sections 93.1 and 93.3 of the *Land Act*, as a way to enable setting and varying of access objectives for a prescribed area that could apply to everyone; all industries and the public.

> **The Board recommends** government require timely notification be provided to non-industrial users of resource roads about pending changes in road status (new construction, changes in maintenance and deactivation).

Industrial licensees build and maintain resource roads. Other users of those roads (commercial interests, the public and First Nations) can have no expectation that access will continue to be provided once the industrial licensee no longer needs the road. Maintaining access created by industry is not the routine responsibility of government. The Ministry of Forests, Lands and Natural Resource Operations maintains some access on forest service roads that serve communities, rural residences and high value recreation areas, but there is no formal mechanism for public input into that program.

> **The Board recommends** government address part of this issue by implementing the recommendation of the BC Forest Safety Ombudsman that "the Province should establish a new public highway designation for resource roads that serve as the primary or secondary access roads for communities."

Operational Management

The Ministry of Forests, Lands and Natural Resource Operations, the Oil and Gas Commission and the Ministry of Energy and Mines all authorize and administer resource roads, more-or-less in isolation of each other, under the authority of seven different pieces of legislation. This variety in authorization mechanisms for resource roads causes operational problems, confusion and inconsistency in requirements and inequities within and between industries. Solving these problems through development of a single comprehensive piece of legislation has been the 'holy grail' of resource road management for over two decades—the current version of this legislation (the Natural Resource Roads Act) has been under development since 2011.

> **The Board recommends** that, until comprehensive legislation is passed, government address many of the operational issues with minor regulatory changes, by developing clear policies and by promoting and supporting the work of local road management committees.

There is a significant potential for non-status roads and roads on forestry cutblocks to be causing more negative effects than necessary.

> **The Board recommends** government complete an inventory of these roads, including rating the risk of negative effects. With respect to road rehabilitation in the forestry context, there is a need for a clear distinction between temporary and permanent access and clear direction that temporary access roads should be rehabilitated.

The Board is encouraged by a number of improvements related to the safe use of resource roads since 2005, including the development of the Off-Road Vehicle Framework, the appointment of a Forest Safety Ombudsman, the province-wide formation of road safety management groups and the development and ongoing implementation of simplified, provincially consistent radio communication protocols and channels on resource roads.

1. Introduction

Resource roads provide natural resource industries with access to the places they work. Those roads also benefit the public, First Nations and some other commercial interests (e.g., ranching, adventure tourism) by providing access to the *back country*. However, roads can cause negative environmental effects such as landslides, siltation of streams, alteration of natural drainage patterns, loss and degradation of wildlife habitat, etc. Well-managed access is fundamental to maximizing the positive effects and minimizing the negative effects of resource roads.

> For this report, the Board defines ***resource roads*** as roads on provincial Crown land that are not part of the of the highway and byway system managed by Ministry of Transportation and Infrastructure, nor by BC Parks.

In December 2005, the Board published the special report, *Access Management in British Columbia: Issues and Opportunities*,[i] which concluded (among other things) that, in the context of resource roads, there was:

- no comprehensive inventory;
- very limited opportunities for public involvement in access management planning; and
- a confusing patchwork of administrative responsibilities and legal requirements for road construction, use, maintenance and deactivation.

At that time, the Board said that government needed to address these issues in a timely fashion; partly because of the anticipated growth in the resource road network that would result from salvaging mountain pine beetle killed timber and increasing activity in the oil and gas and mining sectors.

Government responded in December 2007, with the assurance that it was "expecting proclamation of the Resource Roads Act . . . in the fall of 2008."[ii] A bill was introduced in the legislature in 2008 (Bill 30 – 2008, Resource Road Act)[iii] but that legislative session was prorogued and the act has not been re-introduced.

The Board's 2005 report identified issues related to access management that would not likely have been resolved by the Resource Roads Act. Government responded that there were "initiatives under consideration related to access management strategies."[iv]

This special report provides an update to the 2005 report. The Board undertook this report in the interests of advancing the state of access management in British Columbia. Given the continuing and emerging issues with resource roads, it is time to review what has happened in the intervening years since the Board's 2005 report was published and to summarize the current situation.

In preparing this report, the Board examined publicly available government documents related to legislation, policies, procedures and practices for resource roads; government databases related to the inventory of roads; and published literature related to the positive and negative effects of roads on society and the environment. The Board also conducted a series of formal interviews (see Appendix 1) and informal discussions with people having specific knowledge and information related to the topic. In part, it is those discussions that contribute to the length of this report. The Board has attempted to capture the complexity of this topic by incorporating the input from the people that were interviewed and, to some extent, everyone's perspective on this topic is unique—because we all have different experiences with the use of resource roads.

2. Background

2.1 Context and Brief History

At least 800 000 kilometers of roads have been constructed in British Columbia. Over half of that has been built in the last 30 years. Those roads range from multi-lane, paved highways to overgrown spur roads on forestry cutblocks. This report is specifically about 'resource roads' although, to some extent, the entire road system can be considered resource roads. For example, some main highways are used to transport forest products. The condition of resource roads is highly variable and as a result these roads have highly variable positive and negative effects.

Building, maintaining and deactivating resource roads is a significant expense for natural resource industries and, as a result, provides a significant contribution to local economies. For example, recent annual expenditures for the forest industry in coastal BC were $150 million on road construction and $35 million on maintenance and deactivation, and in the interior of the province the forest industry spent $90 million on construction and $80 million on maintenance and deactivation..[v]

There is a long history of resource road use and construction in BC. Aboriginal people used resource trails prior to European contact; notable examples are the grease trails used to transport eulachon grease from the Pacific coast to the interior..[1] The Cariboo gold rush (1859) was the beginning of road building for wheeled vehicles in BC's interior. By the beginning of the First World War, there was a well-developed railroad network on BC's coast and across BC's southern and northern interior. The network facilitated industrial development and, as a result, many areas had some road access developed prior to the Second World War. After the Second World War, the oil and gas industry developed a substantial network of roads and 'cat cut' seismic lines in northeastern BC. At the same time, there was significant forest industry development of roads on the coast and throughout the southern interior. Since then, the pace of development of resource roads has increased and there is an increasing diversity of resource industries building resource roads and commercial and public interest groups using resource roads. Government has used a variety of legal and policy tools and planning processes over the years in an attempt to mitigate conflicts where they have arisen.

2.2 What is access management?

In the context of resource roads, access management can occur at a strategic planning level (planning across broad spaces and all values and user groups) and a tactical or operational planning level (planning the what, where, when and how of operations to meet objectives, while minimizing costs and maximizing benefits).

[1] For example the Nuxalk-Carrier Route.

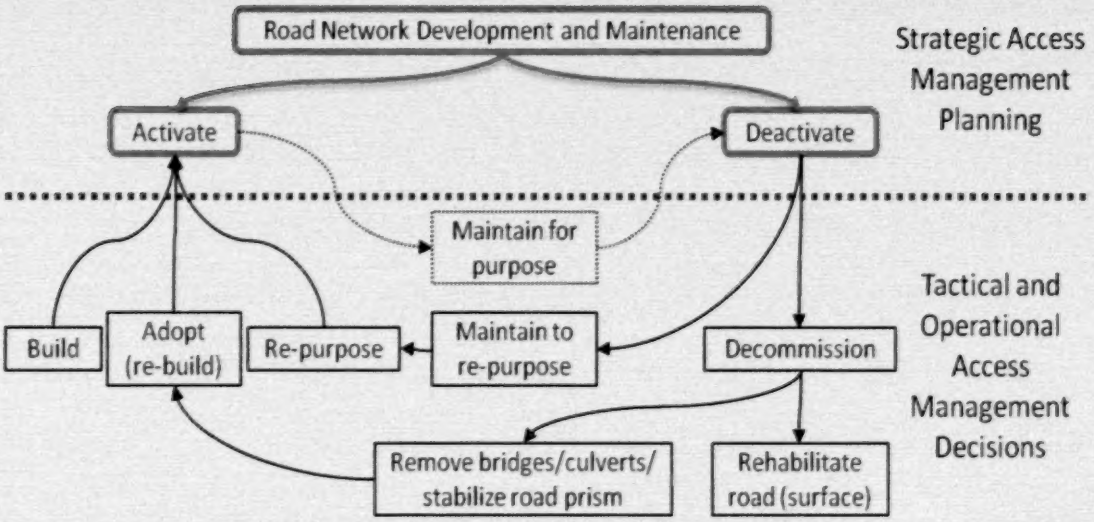

Figure 1. Conceptual diagram of access management decisions.

This distinction is somewhat arbitrary and there is overlap between these categories (Figure 1). Note that the terminology used in Figure 1 is meant to be descriptive rather than legally correct:

Strategic access management planning involves deciding where a road network should (or should not) be developed and maintained and how that network should be used (or how the use should be restricted – see Section 4.5). These decisions clearly must be related to the purpose(s) for the road network. The purposes are primarily industrial (extraction of natural resources), but there are often broader societal purposes that must be considered, such as access to rural residences and recreation areas and the need for roadless areas. These decisions can be multi-scale; involving deciding where roads should be at a broad landscape level and where specific parts of a road network should be activated or deactivated to suit specific purposes. Access management decisions are made subsequent to, or as a subset of broader land use decisions. These decisions may be made in formal land use planning exercises or simply through the granting of rights to extract resources in an area.

Tactical and operational access management decisions can be made once strategic direction about activation (the need for an active road) and deactivation (stop using a road for its intended purpose) has been provided (Figure 1).[2]

The nature of the tactical deactivation decision involves deciding whether the road will be needed again in the foreseeable future:

- If so, it should be maintained in such a way that it can be re-activated for its intended purpose (or for some other purpose). This is commonly referred to as seasonal or temporary deactivation.
- If not, the road can be decommissioned. In general, the intent of decommissioning (commonly referred to as permanent deactivation) is to leave the road in a state that requires no further attention. The decision about what kind of decommissioning is

[2] Note that in Figure 1, once a road is activated there is no need to 'decide' to maintain it for its intended purpose.

appropriate has been simplified in Figure 1 and can involve considerations like reforestation requirements and the environmental risk of leaving the road in any given condition.

- This topic is discussed in some detail in sections 5.3 and 5.4, but it is worthy of note that, in the strictest legal sense, once a road has been deactivated it is no longer a road—even if it still provides access.

The decision about how to activate a road (either build a new one or adopt or re-activate an existing one) should be relatively straight forward, but depends on the purpose for the road and often depends on economic factors.

Use of these acronyms substantially shortens the text of the report.

Government Agency Acronyms:

FLNR Ministry of Forest, Lands and Natural Resource Operations
OGC Oil and Gas Commission

Legislation Acronyms

FRPA *Forest and Range Practices Act*
FPPR *Forest Planning and Practices Regulation*

ORV Off-Road Vehicle – generally, all-terrain vehicles (aka Quads/ATVs), off-road motorcycles and side-by-sides (e.g., utility terrain vehicles/UTVs, trucks and jeeps, etc.) and snowmobiles.

2.3 What effects do resource roads have on the environment?

2.3.1 Water and fish

Perhaps the most significant, pervasive and well-known effects of roads on the environment are those on water quality and the aquatic environment.

Government's forest and range evaluation program.[vi] found that roads were the top ranked impact of forest harvesting on streams by the alteration of natural drainage patterns and increased siltation. Over two-thirds of the impacts of forest harvesting were due to fine sediments being delivered to streams by roads..[vii] Three-quarters of all impacted sites could have been substantially improved by employing one or more well-known management options..[viii]

In 2009, the Board reported[ix] the results of its study of 1110 road crossings over fish streams in 19 watersheds around BC and found that fewer than half of the crossings were likely to allow fish to pass through without problems. Because of FRPA requirements (and those in the *Forest Practices Code of British Columbia Act* before that), forest roads constructed in the last 20 years generally do not impede fish passage. However, there is a huge legacy of problems created by stream crossings built before the Code and by other types of roads in forested watersheds—highways and other access roads (and railways).

Government established a Fish Passage Technical Working Group in 2007. The working group is continuing to address concerns raised by the Board in the 2009 report. The working group has identified tens of thousands of kilometres of stream habitat that is 'stranded' due to stream crossings that impede fish passage. The working group expects to identify many thousands of crossings that are

priority candidates for remediation (defined as those that have isolated more than a kilometre of high quality fish habitat). Unfortunately, the current budget for remediation is around $1 million per year and crossings are taking on average $100,000 to remediate, so solving the problem will take many years.

2.3.2 Wildlife

Terrestrial wildlife populations' response to roads is highly variable, but is generally negative. In 2009, Fahrig and Rytwinski[x] reviewed 79 studies involving 131 species and 30 species groups and found that 114 responses were negative, 22 were positive and 56 showed no effect. Amphibians and reptiles tended to show negative effects. Birds showed mainly negative or no effects, with a few positive effects for some small birds and for vultures. Small mammals generally showed either positive effects or no effect, mid-sized mammals showed either negative effects or no effect, and large mammals showed predominantly negative effects.

In general, where roads have a negative effect, it has been attributed to some combination of direct or cumulative impacts resulting from habitat loss, degradation, fragmentation and/or direct mortality from collisions with vehicles, increased hunting pressure or use of the road by predators.

The most common indicator used to measure landscape-level road influence on wildlife is road density (road length per unit area of landscape (km/km2)). However, other useful indicators of road impact include road type (e.g., permanent main road or temporary logging road), width and traffic volume. The variability in the nature of roads in an area and different species-specific responses to roads results in highly variable estimates of thresholds of road density that should not be exceeded (0.25 to 1.9 km/km^2) although 0.6 km/km^2 is a commonly cited value, especially for grizzly bears.[xi] Recent work done in the Alberta foothills suggests "that the 0.75 road density threshold is most applicable to ensure viable grizzly bear populations,".[xii] although there is significant uncertainty around this estimate and the authors state that "working towards road densities that are lower than this threshold is a preferred conservation strategy" and that "the influence of human behaviour on roads plays a role in grizzly bear survival rates and population demographics.".[xiii]

During the preparation of this report, and in a previous complaint investigation,[xiv] the Board has heard that loop roads can have a negative effect on wildlife populations. Loop roads create situations where one road can be used to access a watershed and another can be used to leave the watershed. Loop roads may improve timber delivery to mills and improve safety, but they may increase hunting pressure and make it easier for illegal hunters to escape detection.

2.3.3 Invasive plants

Roads are well known for enabling the introduction of invasive plants into new areas. This issue is not restricted to resource roads. Highway right-of-ways are recognized as a major pathway for invasive plant spread, and are often the starting point for infestations found in adjacent pastures and forests.[xv] There are best practices for limiting the spread of invasive plants that are directed at forestry and oil and gas operations.[xvi] Although operators may be aware of these best practices, they don't necessarily implement them and there is typically no legal requirement to do so.[3]

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[3] Legal requirements to control the spread of invasive plants, found in the FPPR and the *Environmental Protection and Management Regulation* of the *Oil and Gas Activities Act* are results-based.

3 Inventory and Information About Roads

The 2005 Board report concluded that there was "no comprehensive inventory of the number, location and ownership (status) of resource roads."[xvii] That situation continues today.

For this report, the Board used available information from government to cobble together a rough map of the current location of roads and a rough estimate of how much road various industries and government agencies are responsible for (see Appendix 2 for methods). There are significant issues with this information that limit its utility, particularly for the general public:

- Government's map of the location and surface type (paved, gravel, overgrown) of resource roads is current only to the mid-1990s for most of the province.[xviii]
- Current information about forestry and oil and gas roads consists largely of permits to construct roads issued under the *Forest Act* and the *Oil and Gas Activities Act*, NOT reports of actual roads built (but see below). The result is that, in many cases, government has no record of what roads have actually been constructed or deactivated.
- There is no readily available information, including permits, about roads constructed under the authority of other acts (e.g., *Mines Act*, *Land Act*, *Hydro and Power Authority Act*).
- The information that is available is in numerous separate databases (the Board used 11 to prepare its estimate). In order to begin to obtain a complete picture, these databases need to be combined and overlaps (duplicate lines) removed.

In 2005, the Board was encouraged that there was a new requirement for the forest sector to report 'as-built' roads (under FPPR section 86). The Board noted that the requirement should apply to all resource roads, but at least it was a significant step in the right direction, particularly given the large number of forestry roads built. However, the requirement was removed in 2008; therefore, as built forestry roads were only reported for three years. The stated purpose of repealing the requirement was "to conduct a review of roads reporting over the next two-year period to ensure that it reflects the efficient business processes for both government and industry."[xix] Following the review, new regulations and reporting were to be put in place. Unfortunately, that never happened and there has been no requirement or mechanism for reporting roads built by the forest industry since 2008.

The Board notes that the location of roads built on forestry cutblocks that are permanent access structures are typically[4] reported to the RESULTS[xx] database. While the location is reported, there is no information available about the condition of these roads. Most will have been deactivated and some will be overgrown.

Since June 2013, the oil and gas industry has been required to file a report describing the location of newly constructed roads.[xxi] Since November 2014, they have also been required to report the location of any roads that they maintain.[xxii] These requirements will improve the information that government has about oil and gas resource roads in northeastern BC, as time progresses. This is one example of a pervasive problem with reporting—when reporting requirements are put in place there is rarely a requirement to go back and report previous activities. In this example, there is no requirement to

[4] In some cases there is no spatially explicit report, the road area is deducted from the net area to be reforested.

report the location and status of existing oil and gas roads built before 2013, unless they are currently being maintained. The onus is on government to determine where those roads are.

Government is working to rectify some of the issues outlined above. GeoBC[5] has embarked on a BC Resource Roads Update Program[xxiii] that is intended to provide an up-to-date database (and map) of resource roads. The intent is to provide the natural resource sector and the public with a much more comprehensive spatial dataset of the province's total road network than is now available. The process involves collecting known information about roads and supplementing that with remote sensing data (aerial photography or high resolution satellite imagery) interpretations to map the location and current state (surface type) of all existing roads. About 30 percent of the province has been updated since 2012 and the plan is to complete the first round of updates by July 2016..[xxiv]

After the Natural Resource Roads Act is proclaimed and regulations bring it into force, government intends to begin implementing a system for obtaining information from licensees about newly built resource roads and that data will be used to update the location and surface type information. The system will also be used to provide attributes about the road's tenure holder and maintainer and what type of traffic the road is suitable for. Part of the intent is that a member of the public should be able to query a road in the database and get the up-to-date information they need.

The Board notes that issues with poor information about roads are not restricted to government. Board auditors often encounter forest licensees who are unable to identify all of the roads they are responsible for and what level of deactivation has been undertaken.

A completely functional road database is some years in the future. In the meantime, everyone with an interest in resource roads (industrial, commercial and public) needs information about these roads—their location, maintenance status, radio channels to be used, etc. Most people will rely on the internet to obtain information. Unfortunately, the information provided on government websites about resource roads is often inconsistent, easily misconstrued, out of date or simply wrong. Given that many people get their information directly from government websites, it behooves government to ensure that what little information is provided is at least clear, consistent and correct.

3.1 How much road is there in BC and who is responsible for it?

The Board estimates that 800 000 kilometres of roads have been built in BC (Figure 2).[6] This estimate is simply a sum of all of the roads and road permits (with duplicates removed) that have been reported to government. This underestimates the actual amount of road that has been built (e.g., there is no record of some of the deactivated forestry haul roads, some of the forestry roads constructed on cutblocks and some fire guards).

The map used to provide this estimate can be viewed at https://www.bcfpb.ca/sites/default/files/SR49-Over-Sized-Key-Map.pdf. These maps are meant to be viewed but not printed. A legend is available in Appendix 4.

Printable [11" X 17"] maps showing selected portions of the province are available at https://www.bcfpb.ca/sites/default/files/SR49-Tabloid-Key-Map.pdf.

[5] An agency of FLNR that provides mapping services (http://geobc.gov.bc.ca/).

[6] See Appendix 2 for methods of estimation and Appendix 3 for estimates of road length by Natural Resource District.

In 2005, the Board estimated that there were 600 000 to 700 000 kilometres of road in BC..[7] The government's 2007 State of Environment (SOE).[xxv] report provided an estimate of 660 000 to 750 000 kilometres of road in 2005.[8] The conclusion is that, somewhere between 6 000 to 25 000 kilometres of road has been built per year between 2006 and 2014. This enormous range highlights the issue described above—no one, including the Board, has ever had, nor now has, a comprehensive inventory of roads in BC. As a result, precise, and possibly accurate, estimates of the amount of road are not possible.

The main utility of Figure 2 is to provide a comparison of the amount of road in different categories and who is responsible for it, rather than an absolute value of the length of road in any given category.

Over three quarters of the roads are resource roads (620 000 kilometres). The vast majority of that (480 000 kilometres), over 75 percent, is known to have been built by the forest industry (or by government to facilitate the forest industry).

The largest category of roads is roads built by the forest industry on cutblocks (240 000 km).[9] under the authority of a cutting permit or timber sale licence..[10] These roads are used to facilitate removal of timber after harvesting and are generally deactivated shortly after the harvesting is complete. Note that this amount does NOT include the trails (e.g., skid, back-spar) that are created during logging and usually rehabilitated shortly after. The condition of these roads is highly variable and depends on the environmental conditions where the road is located, the length of time since the harvesting was completed and the amount of use the road receives. Many of these roads are deactivated[11] and 'brush in' or become overgrown, but others remain accessible to, and are used by, four wheel drive trucks and ORVs. Around 60 percent of the 100 000 kilometres of roads of unknown status and origin were likely created by the forest industry before there was any requirement to provide a digital map of the outline of cutblocks (if so, this would bring the length of resource roads built by forestry to 540 000 kilometres or nearly 90 percent of the total).

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[7] Based largely on rough estimates in various categories provided by government staff at the time.

[8] Based on airphoto interpretation of a sample of 0.1 percent of the province's area designed to support the National Forest Inventory. The estimates provided are the upper and lower 95 percent confidence intervals reported.

[9] These cutblocks and the roads in them in many cases were reported to the FLNR Reporting Silviculture Updates and Land status Tracking System.

[10] This category includes some roads on area-based forestry licences (Tree Farm Licences, Woodlots and Community Forests) that were not explicitly identified as being on cutblocks.

[11] Note that in the strictest legal sense, once a road has been deactivated it is no longer a road—even if it still provides access.

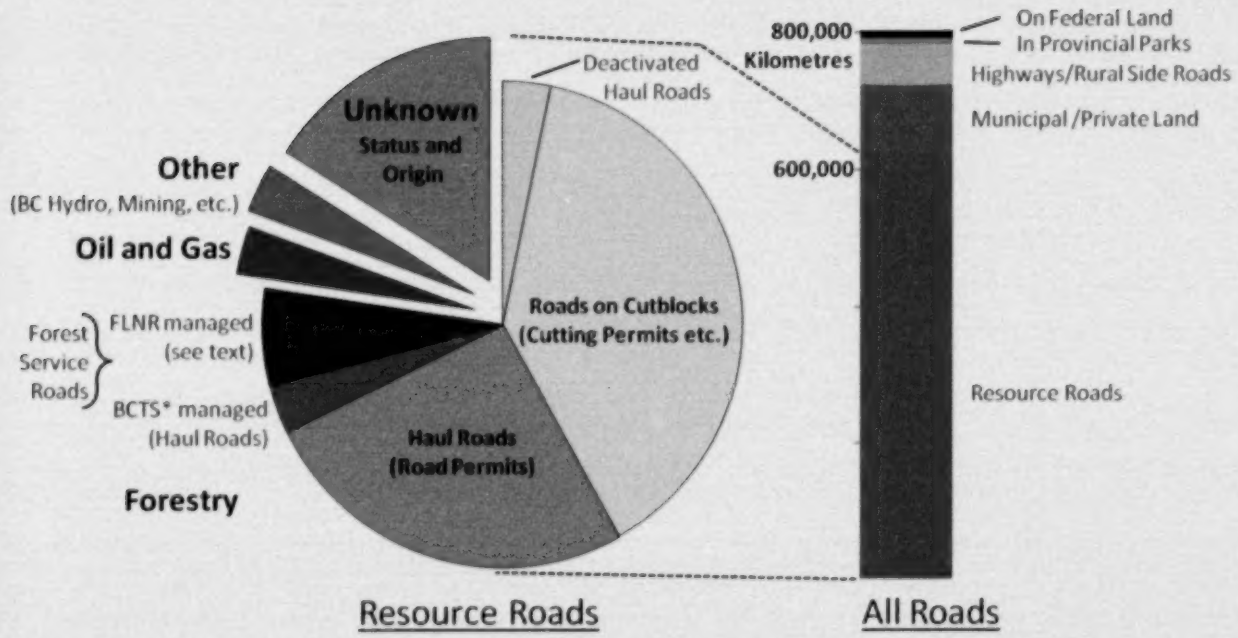

Figure 2. Estimates of road length by responsibility (* BCTS = BC Timber Sales).

About 180 000 kilometres of haul roads are managed by the forest industry to provide access to cutblocks. These include the roads built by the forest industry under the authority of a road permit (haul roads in Figure 2) and about 20 000 kilometres of forest service roads managed by BCTS. Note that in some cases, particularly in steeper terrain where relatively permanent road systems are built, these roads can be roads on cutblocks. Of the total 180 000, less than one-quarter is actively being used by the forest industry at any given time. The remaining three-quarters is being maintained as "wilderness road" (FPPR Section 81).

Wilderness roads (FPPR Section 81) are required to be maintained to prevent damage to the environment but may not be suitable for industrial (or any other) traffic.

As noted above, FLNR has no explicit method of recording the location of deactivated roads. The Board used government's information to infer (see Appendix 2) that a minimum of 20 000 kilometres of road constructed under the authority of a road permit has been deactivated. This may significantly underestimate the amount of deactivated road because, in the past, information about road permit roads that had been deactivated was often deleted from government's database.

FLNR manages about 40 000 kilometres of forest service road. About one-third is maintained by the forest industry under road use permits. About one third is maintained by government, primarily to provide access to rural residents and high value recreation sites[12] (one quarter and three quarters, respectively). FLNR maintains almost all[13] of the remainder as wilderness road (FPPR Section 81).

[12] High Value Forest Recreation Sites and Trails, as identified by FLNR Recreation Sites and Trails BC or identified as important recreational areas by the FLNR Regional Executive Director.

[13] A very small portion is closed and not maintained or deactivated.

The oil and gas industry has permits for the management of about 20 000 kilometres of resource road, virtually all of which is in northeastern BC, east of the Rocky Mountains. These roads are generally built to a high standard, suitable for the vehicles that are required for oil and gas development. Just over 10 000 kilometres only supports traffic during the winter months (when snow and ice protect the ground surface). These winter roads are often built over muskeg. Nearly 40 percent of the roads of unknown status and origin occur in the Peace and Fort Nelson Natural Resource Districts (Appendix 3), and much of it was likely created by the oil and gas industry before there was any requirement to report their activities. Up to the late 1990s, the oil and gas industry created over 100 000 kilometres of seismic lines that had the character of ro .ds—these were so-called *cat cut* seismic lines, typically 7-metres wide and long and straight. The current environmental effects of these lines are not well understood and they are not included in Figure 2.

The Board estimates that approximately 20 000 kilometres of resource road was built by, or is the responsibility of, other industries. The majority of these roads are the responsibility of BC Hydro. Other industries and commercial interests, (e.g., the mining industry, clean energy projects [also known as independent power projects], wind farms, commercial tourism) build very little road compared to the forest industry. Although these roads represent a small proportion of the total, their local impact can be very high. Roads associated with mining are a major influence in northwest BC. Clean energy projects and associated roads are important in some areas of coastal and southeastern BC.

Finally, about 100 000 kilometres of resource road exists on maps, but have no obviously apparent status. As discussed above, about 40 percent of that was likely created by the oil and gas industry and the vast majority of the remainder was likely created by the forest industry.

A little less than one-quarter of the roads in BC (180 000 kilometres) are not resource roads, as defined above. They are a combination of public highways and rural side roads managed by the Ministry of Transportation and Infrastructure, roads in municipalities, roads on or around private land, roads in provincial parks and roads on federally managed lands (National Park, Military and Indian Reserves). About 60 000 kilometres of these roads are paved. Some of these roads experience considerable amounts of traffic from the industries that build resource roads.

4 Strategic Access Management

The principal issues related to strategic access management that were identified in the Board's 2005 report still exist today:

- Government has virtually no legal objectives for road access. Consequently, industrial licensees are not required to address access issues in their planning. For example, a forest licensee need not include results or strategies for managing access in its forest stewardship plan (FSP). Those plans are typically mute or highly general in nature with respect to access, so members of the public concerned about access issues cannot easily provide effective review or comment.
- There is no legal requirement for government or industry to undertake access planning. There is no legal requirement for licensees in the forest industry to consult with each other or other

commercial interests when they plan roads. There is no requirement for any industrial road builder to consult with, or notify, the general public about plans for the construction, maintenance or deactivation of roads.[14] As a result, there has been very limited opportunity for the public to engage proactively in access planning. There are exceptions, as noted below.

The Board notes that environmental assessment certificates[15] can, and sometimes do, contain requirements for access planning.[xxvi] However, these requirements are sometimes at odds with the capacity or intent of the government. For example, the conditions for the environmental assessment certificate for the Upper Lillooet hydro project require the proponent to "participate in multi-stakeholder access management or land use planning undertaken by the Province," specifically in relation to the effects of the project on grizzly bears.[xxvii] However, the proponent's compliance report of December 20, 2013, states that they submitted a letter "to FLNR and EAO [Environmental Assessment Office] reconfirming [their] commitment to participate in the Provincially led multi-stakeholder access management planning and requesting that they inform the Holders when the Province commences planning activities."[xxviii] The Board is not aware of any plans by government to undertake such planning.

4.1 Land Use Plans

As noted in the Board's 2005 report, strategic land use plans usually make reference to access management, providing general guidance to industrial users[16] about access and often describing desired recreational opportunities for various zones (e.g., motorized and non-motorized recreation). Land use plans were completed for most areas in the province, but nearly 70 percent of the province either has no plan or the plan has lapsed—completed more than 10 years ago with the unfulfilled promise that it would be fully updated within 10 years.[xxix] The access management direction in those stale dated plans may be of limited value. Further, access direction in land use plans is seldom given legal effect under the *Government Actions Regulation* or *Land Use Objectives Regulation*. FSPs are not required to, and generally do not, address non-legal objectives in land use plans. There are rare examples where FSPs have results or strategies for objectives set in regulation (e.g., the Tree Farm Licence #1 FSP recognizes objectives for FRPA section 58 trails) and objectives set by government (e.g., Canfor/Kluskus FSP recognizes road access targets for specific values set in the Cariboo Chilcotin Land Use Plan).

Since the previous Board report in 2005 there have been several land use plans completed that have provided some guidance about access. Notable among these are the Wóoshtin wudidaa Atlin Taku Land Use Plan, completed in 2011,[xxx] that contains reasonably specific direction regarding access management in the plan area, and the Sea-to-Sky Land and Resource Management Plan, completed in 2008,[xxxi] that contained direction to undertake coordinated access management planning for the area.

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[14] Although the Standards of Professional Practice of the ABCFP indicate that "Professional Care" (bylaw 12.2.3) includes taking public or stakeholder input into account. (http://www.abcfp.ca/regulating_the_profession/documents/guideline_standards_professional_practice.pdf).

[15] Issued under the authority of the *Environmental Assessment Act* for the development of major projects.

[16] In this report the Board uses the phrase 'industrial user' to mean those that typically construct resource roads in the forestry, oil and gas, and mining industries as well as those in 'other' industries like BC Hydro, clean energy projects and windfarms. The Board does NOT mean "industrial user" defined as a person referred to in section 22.1 [industrial use of a road] of FRPA.

That access management plan, completed in 2009,[xxxiii] primarily addressed managing the use of existing road access to access-sensitive areas, maintaining road access to important recreation resources and managing future access to access-sensitive areas. It also suggests 13 access control points for seasonal and year-round access closures to protect provincially threatened grizzly bear populations and seasonally important habitats. These suggestions were legally implemented through the establishment of gates under the authority of the *Motor Vehicle Prohibition Regulation* of the *Wildlife Act*.

A novel approach to land use planning, at the landscape unit level, was taken in development of the South Chilcotin Stewardship Plan (2014). The Tsilhqot'in National Government directly engaged in planning with forest licensees, with deliberations facilitated by government representatives. The Nation sought specific stand and landscape level measures to conserve wildlife habitat, biodiversity and watershed hydrology. Managing the current and forecasted density of active resource roads remains a long standing issue for the Nation, and was a fundamental focus point for the South Chilcotin Stewardship Plan. The planning initiative resulted in agreement on resource road management, including specific targets and measures respecting road access.

4.2 Cumulative Effects Assessment

When the Board published its previous report in 2005, formal discussion of cumulative effects assessment was rare in BC's public service circles, with the exception of some project-level assessments done by the Environmental Assessment Office and some discussions in northeastern BC. Since 2010, the topic has received more attention, including a Board special report published in 2011..[xxxiii] Man-made linear features in general, and roads in particular, are one of the most significant contributors to cumulative environmental effects in many areas..[xxxiv] Management of those effects requires assessment and planning.

FLNR has embarked on the development of a cumulative effects framework.[xxxv] and there seems to be a clear recognition that road issues need to be included in that framework..[xxxvi] However, the initiative is still in its infancy and it's too soon to draw any conclusions.

In northeastern BC, there has been significant concern about the cumulative effects of oil and gas development, combined with other industries—principally forestry—over the last decade..[xxxvii] The OGC has embarked on an area-based analysis; the intent of which is to layer the 'footprint' of all of the natural resource developments on top of various environmental values and compare the result against government's strategic direction, statutes, regulations and existing land-use plans to determine whether changes in management are required. This project is still in its early stages with the first report addressing two of five proposed values..[xxxviii] The OGC recognizes that the process needs refinement. There is a need to field verify both the footprint analysis and its overlap with the values. There is also a need to include the recognition that different parts of the footprint have different ecological effects (e.g., the current process does not account for the ameliorating effects of ecological succession). The Board notes that, in the context of this report, the area-based analysis does not currently account for the general recognition that linear corridors (roads) have an environmental effect that is disproportionate to their absolute footprint. However, the Board also notes that there is very little, if any, unambiguous evidence about how to account for this.

4.3 Access Management Plans

Since the 2005 Board report was published, access management planning involving multi-stakeholder participation has been restricted to plans focusing on outdoor recreation. Four such plans have been completed: the Sea-to-Sky coordinated access management plan, discussed above, and the three plans described below.

4.3.1 Vanderhoof Access Management Plan

Access management planning for the Vanderhoof Natural Resource District was led by government and completed in 2008. It updated the direction provided by the 1998 Land and Resource Management Plan. The updated plan reflects impacts of the mountain pine beetle infestation and subsequent forest harvesting. The plan designates areas intended for motorized and non-motorized recreation. The plan is not legally binding, it "is a policy plan that does not have any legislative authority to regulate compliance. Implementation will solely be reliant on voluntary compliance, professional reliance and a commitment from all parties, including government agencies, industry, commercial recreation, the community-at-large and the general public."[xxxix]

This policy approach has met with limited success. The Board investigated a complaint from a guide outfitter whose business was negatively affected by a forest licensee that would not comply with the plan..[xl] The Board concluded that the issue arose because government was unwilling to legalize the plan and provides no process for mediation where different tenure holders' interests conflict. Government continues to monitor compliance with the Vanderhoof Access Management Plan for forest recreation. The results indicate that where established patterns of recreational use existed prior to the plan there was little compliance, particularly where there was ongoing industrial activity; however, in newly developed areas there was reasonable respect for closures..[xli]

4.3.2 Bulkley Valley Community

The Bulkley Valley Community Resources Board is leading the development of recreation access management plans in the Bulkley Valley to resolve ongoing disputes among recreational users of specific areas. A plan that addresses the summer recreation areas was completed in 2013 and provides recommendations for 60 sites and trails used for summer recreation. The plan recommends that government designate the uses and, where applicable, set objectives for these areas. Like the Vanderhoof access management plan, the Bulkley plan is not legally binding. Enforcement relies on the notion that "shared responsibility and mutual respect are the foundations for a community-based process. Monitoring recreational use is the responsibility of all users.".[xlii] The plan states that irresponsible use can result in charges under section 46 (damage to the environment) of FRPA. It is important to note that the plan is the result of a community-led process that was funded in part by the FLNR Recreation Sites and Trails Branch and also by Wetzink'kwa Community Forest Corporation and the Real Estate Foundation of British Columbia.

4.3.3 Valemount to Blue River Winter Recreation Sustainable Resource Management Plan

The Valemount to Blue River Winter Recreation Sustainable Resource Management Plan[xliii] was completed in 2005. The plan sought to address conflicting recreational uses, for example between heli-skiing operations and recreational snowmobiling. There was also recognition that the potential negative effects of winter recreation on caribou populations needed to be addressed. The plan

outlined a diverse array of zones applicable to different kinds of winter recreation and imposed restrictions on some types of recreation in some zones. The plan noted that "a range of legislation is available to implement the recreational closures ... including: *Wildlife Act* (closures for caribou), FRPA and the *Land Act* (closures to separate incompatible uses). Administration and enforcement of these closures needs to be based on a coordinated approach."

These tools were subsequently used to restrict public use in some areas for some types of recreation, in conjunction with the outcomes of the Mountain Caribou Recovery Implementation Plan..[xliv] This plan implemented more extensive snowmobile closures (under section 109 of the *Wildlife Act*) than were recommended by the Sustainable Resource Management Plan and it also implemented the protection of 2.2 million hectares of high suitability mountain caribou habitat from logging and road building (through the establishment of ungulate winter ranges). Given the continued decline in mountain caribou populations, the effectiveness of these measures remains to be seen.

Access management plans developed by multi-stakeholder groups have provided guidance for motorized and non-motorized recreation to protect environmental values, and public and commercial recreation values. However, where access management plans exist, they are largely implemented voluntarily through signage, maps and education (e.g., via local recreation clubs), and implementation success has been variable. Reasons for poor implementation include users from outside the community and local recreationists who are not members of clubs who are not aware of the plan's direction or who do not care about the plan.

In addition, the Board heard that there is little capacity or direction within government to lead multi-stakeholder access management planning. Access management planning is similar to land use planning in that it is very time consuming with uncertain outcomes in terms of reaching consensus. The Board also heard concerns that any access management planning undertaken without multi-stakeholder involvement will not work.

4.4 Access Management Consultation and Notification

Being involved in a multi-stakeholder access management planning exercise undertaken by government is viewed by the Board as being the 'gold standard' of public[17] involvement. This standard has not been available to anyone in BC since the Sea-to-Sky coordinated access management plan was completed in 2009. However, there are lower standards of public involvement identified by government..[xlv] These include public consultation and, at the minimum, notification.

From the late 1990s through to 2005, the province led many local planning processes in the Kootenay Region, resulting in the completion of several plans developed with broad stakeholder input. A number of these were specifically related to recreational access management planning..[xlvi] Government realized that, to maintain their effectiveness, those recreation plans needed to be living documents that would be amended as circumstances changed. Government provided leadership to committees that discussed amendments to the plans. This process was largely one of consultation about changes to public use restrictions that would affect the local community. On March 25, 2014, the four groups involved (including the Columbia Valley Recreation Access Council) were informed that

[17] Note that the Board means everyone, including industry, commercial interests, First Nations, public interest groups and the general public.

government would no longer be involved in the coordination or leadership of these groups, although technical advice would still be provided on an as requested basis. Government suggested that it "will continue to consider recommendations that advisory committees . . . develop, as advice" and that "such advice will carry weight if it [comes] from a balance of all stakeholder interests.".[xlvii] A year later, only one of the four groups had indicated it was going to remain active by providing a contact name to government (the Golden Backcountry Recreation Access Committee).

Resource roads in the Chilliwack Natural Resource District are in very high demand for public recreation because of their proximity to Vancouver and the lower mainland. In 2010, a Chilliwack Recreational Advisory Group was formed by representatives of organizations involved in motorized and non-motorized recreation activities. Meetings of the group are now facilitated by the Chilliwack district recreation officer. While the group members try to resolve issues among themselves, the principal role of the group is one of consultation; FLNR consults with the group who, in turn, consults with its members and the broader public. The group has been highly successful at educating the public about various forest management issues, including access-related issues, and it is helpful to the district recreation officer in setting budget priorities.

Broader government continues to consult with the public regarding access management in some areas. A notable example is the planning undertaken by FLNR Recreation Sites and Trails Branch in the Thompson Rivers District..[xlviii] Government also consults about proposed public use restrictions implemented through section 109 of the *Wildlife Act* during the process of amending hunting regulations.

Notification is the most basic level of public involvement. There is no requirement for any industry to notify the public about the construction or deactivation of a road.[18] There are examples where industry has notified affected parties, particularly of deactivation..[xlix] However, the Board heard from the outdoor recreation community and adventure tourism operators that lack of notification about changes in road access (construction of new roads, change in the maintenance status and deactivation of existing roads) is a pervasive problem and one of their principal concerns. A subsequent concern is that there is no formal avenue for appealing the decision to deactivate a road. If no industrial user is willing to maintain the road, and the natural resource district is unable to due to costs or safety concerns, the only option under FRPA is to deactivate the road. Despite this, public pressures can result in the process becoming a political one, in which elected officials become involved in the decisions.

4.5 Access Restrictions

In BC, there has been virtually no use of proactive legal tools for setting access management objectives..[19] However, there is a long history of restricting access through legal mechanisms.

FRPA (and the *Forest Practices Code of British Columbia Act* before it) allows government to restrict forest industry harvesting and road building through the establishment of general wildlife measures

[18] In some cases parties other than the general public must be notified. At least 48 hours before commencement of road construction or deactivation in a community watershed, a person must notify affected water licensees or affected water purveyors. The oil and gas industry is required to notify other industrial users and landowners about deactivation of roads – 14 days prior to the event.

[19] With the possible exception of the *Muskwa-Kechika Management Area Act* and *Muskwa-Kechika Management Plan Regulation*.

within wildlife habitat areas and ungulate winter ranges, and under the *Land Act* by establishing old growth management areas.[20] However, these restrictions may have limited effect on road building. For example, government's policy[i] is to "retain old growth management areas . . . except where timber harvesting is required for . . . road and bridge construction to access resource values beyond or adjacent to OGMAs where there are no other practicable alternatives." Where an environmental assessment certificate has been issued (for example to build a major mine) government's policy is to generally grant exemptions to general wildlife measures that restrict road building when needed to provide access to the project.[ii]

Public access to areas of Crown land can be legally restricted in several ways:

- The *Land Act* (section 66) and the *Motor Vehicle All Terrain Act* (section 7) can be used to create prohibition regulations that can restrict the use of all motor vehicles either seasonally or year round.[21]
- The *Wildlife Act* (sections 108 and 109) can be used to prohibit or restrict access to specific areas or to roads for the purposes of protecting wildlife or wildlife management. These restrictions are regulated (and the areas defined) under:
  - the *Closed Areas Regulation*, which restricts hunting and trapping in specific areas;
  - the *Public Access Prohibition Regulation*, which restrict all access to an area; and
  - the *Motor Vehicle Prohibition Regulation*, which restricts specific mode of access (motor vehicle or ORV) for specific purposes (areas are either closed to hunting or simply closed).
- FRPA (section 58) can be used to restrict public access to Crown land for the purposes of protecting a recreation or range resource. These restrictions are enabled through a public recreation order under the *Forest Recreation Regulation* (there are no regulations in force for restricting public access to protect a range resource).

Public use restrictions, particularly for wildlife management purposes, have a long history in BC. In the east Kootenays, the first motor vehicle prohibition area in the province, Premier Ridge, was established in the late 1970s to protect ungulate populations and their habitat. Notably for mule deer, the current Kootenay-Boundary Mule Deer Management Plan states that "motorized vehicle closures have been used as a tool to protect valuable mule deer habitat and/or restrict access to areas where mule deer are vulnerable at certain times of the year. . . . Access management continues to be a contentious issue in the Kootenay Region and the hunter survey report suggested little appetite for additional motor vehicle closures, although some stakeholder groups support road closures."[iii]

In many cases, these restrictions have limited effect because there is no physical barrier, such as a gate, that prevents access (and the effectiveness of gates is limited—see section 4.5.1) and there is typically very limited enforcement of the restrictions by government officials. The result is that the restrictions are essentially voluntary—one can simply ignore them. The vast majority of the recreating public does respect these restrictions, but it only takes a small proportion of 'bad apples' to render the restrictions ineffective. In many cases there are signs posted describing the restrictions, but these signs

[20] Similar restrictions can be imposed on the oil and gas industry by the *Oil and Gas Activities Act*.

[21] The *Motor Vehicle (All Terrain) Act* is being replaced with the *Off Road Vehicle Act*. Regulations are expected by June 1, 2015, that will enable similar closures.

are frequently vandalized, making them ineffective even for that small proportion of the traveling public that reads signs.

Enforcement of the restrictions by government agents (the Conservation Officer Service of Ministry of Environment and the Compliance and Enforcement Officers of FLNR) is limited in part because there are so few of these agents physically present on the landbase and they have much broader duties than simply enforcing public use restrictions. In addition, enforcement can be difficult because ORVs do not currently require registration and therefore it is impossible to identify the vehicle (or the owner) unless it can be stopped. This issue will be resolved once the newly enacted *Off Road Vehicle Act* is brought into force with regulations—intended by June 2015. FLNR recently announced that voluntary ORV registration with the Insurance Corporation of BC was in place on November 17, 2014.

The Board notes that there is an innovative program regarding enforcement of public access restrictions in the East Kootenays, known as the "Access Guardian." Formally the Access Management Compliance and Enforcement Program, it is an agreement between the Regional District of East Kootenay and the Conservation Officer Service to have a conservation officer dedicated to backcountry education, public relations and enforcement of access restrictions in the Elk Valley from May 15 to November 15 of each year. The program is jointly funded by the Regional District, Columbia Basin Trust and all three Elk Valley municipalities. This program has been very successful in improving the level of compliance with access management restrictions in the area (although some issues continue). The Access Guardian spends much of her time patrolling and enforcing the access management areas in the region and educating people 'on-site' about those restrictions; but another highly successful role it plays is educating the public through presentations to organized recreation groups.

4.5.1 Gates

A gate can be authorized on a road on Crown land for reasons of public safety (e.g., an unsafe bridge, active construction or maintenance), to prevent vandalism, as a barrier when major structures are removed during deactivation and to prevent access to areas where public use restrictions are in place.

The Board heard that, while gates can be useful for restricting public access, they are inefficient at best and are often ineffective. Several people noted that they had installed gates, but that they tend to be vandalized. Also noted was that gates can lead to a perception that those with keys get special treatment. Usually only manned gates are effective at controlling public access because, while the vast majority of the public respect gates—particularly those with signs explaining why the gate is needed, there is a small segment that makes it their mission to open locked gates. Additionally, in many areas of BC with relatively gentle terrain, it is not always possible to find a location for a gate that effectively restricts access, particularly for ORVs.

There is an inherent tension in the desire for road access on the part of some outdoor recreationists and some in adventure tourism businesses.

"All conservation of wildness is self defeating, for to cherish we must see and fondle, and when enough have seen and fondled, there is no wildness left to cherish."

Aldo Leopold
A Sand County Almanac
1949

The utility of gates could be improved by providing information about whose gate it is, when and why the gate was put in, and when the gate will be removed or opened.

4.6 Maintenance of Public Access

Roads built by resource industries (forestry, oil and gas, mining) are also used extensively by the public engaged in backcountry recreation, and in some cases to access rural communities and residences. They are also used by a wide variety of other commercial interests including adventure tourism operators (and their clients), commercial trappers, ranchers and silviculture workers.

Once provided with access, many people perceive it as their right to have that access maintained. This is understandable in some cases, particularly where industrial roads are built into previously remote communities, including First Nations communities. That access can substantially change the way of life for the people living there. The access may be maintained for many years or even generations, and it is not reasonable to expect those people to return to a remote way of life once the industry no longer requires the access. Other cases are less clear. Should the public expect continued road access to what was previously a remote recreational opportunity? Should someone buying a cabin on a small piece of private land expect access to that cabin to be maintained just because he drove there when he bought it?

Often those involved in backcountry recreation see little or no distinction among the many types of gravel roads that they travel on. The entire road system is seen either as the playground itself (e.g., for those in the four wheel drive community) or as access to the playground for those with ORVs or those interested in non-motorized recreation. The Board heard that there has been a large increase in the use of resource roads by members of the public, particularly for recreational purposes, in southern BC. Roads that previously saw use only by industrial traffic and private four wheel drive pick-up trucks now see substantial use by two-wheel drive cars and even motor homes.

The Ministry of Transportation and Infrastructure has an extensive network of gravel roads, some of which reach into the back country. These roads are primarily built and maintained to provide access to rural communities and individual residences. In the Peace country, much of that network supports the agricultural industry. Maintenance of this access is not guaranteed, but will likely be continued. There are a series of specific funding programs that ensure this: Interior and Rural Side Roads Program, Mountain Pine Beetle Strategy Funds, and the Oil and Gas Rural Road Improvement Program.

Beyond the end of these roads, access is maintained either by FLNR,[22] on forest service roads, or by the industrial licensee that built the road.

The legislation that is used to authorize roads cannot be used to prevent a non-industrial user from using a resource road, except in specific circumstances as discussed above. The legislation generally prohibits charging fees for non-industrial use of resource roads.[23] This is congruent with the notion of an "open roads principle" espoused as part of the development of the proposed Natural Resource Roads Act.[liii]

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[22] Additionally limited funding is provided also by Ministry of Transportation and Infrastructure through the Roads Serving Rural Residences program.

[23] Although Section 118 of FRPA allows the government to enter into agreements that allow for charging the public to use a recreation trail as regulated under the *Forest Recreation Regulation*.

Those users with commercial interests are generally granted exclusive rights to conduct their commercial activity on a piece of land (e.g., only the authorized guide outfitter can provide guided hunting in the authorized area). However, those authorizations rarely prevent an industrial user or a different commercial user from operating in the area (e.g., authority to provide guided hunting does not prevent a forest company from harvesting in the area). Authorizations for commercial non-industrial uses do not ensure that existing road access will be maintained in the future.

In fact, where an industrial licensee maintains a road, there can be no expectation that access will continue to be provided. Throughout the central interior in particular, where there has been substantial development of industrial access to salvage mountain pine beetle affected timber, continued maintenance of roads will become a significant issue as the salvage harvest decreases over the coming years. This will affect some rural residents and many recreational opportunities. For example, access to over 70 BC Parks is currently provided by over 3500 kilometres of road that is maintained by an industrial licensee (mostly forestry).

FLNR manages about 40 000 kilometres of forest service roads.[24] At any given time, about one-third of those are maintained by the forest industry (under a road use permit). About one-third are maintained by government, primarily to provide access to rural residents and high value recreation areas..[25] Almost all of the remainder are maintained as wilderness roads.[26] (a few are closed). There are a number of issues with these forest service roads in the context of public use:

- The roads were originally built for industrial (forestry) purposes. This standard of construction means that the road may not meet the expectations of the general public.
- There is no formal mechanism (involving the public) for deciding which roads should be maintained to what standard, but there are continual demands on FLNR for increased maintenance of roads. FLNR Engineering Branch is currently revising its policy to guide maintenance funding decisions on FSRs. The Board was advised by FLNR staff that current budgets are sufficient only to satisfy about one-third of the demand. The result is that budget allocation decisions may not satisfy public expectations, and the decision-making process can become political (elected officials become involved), as noted previously.
- There are continual demands from the public for government to take on the maintenance of roads no longer being used by the forest industry. Some members of the public have expectations that this should be a routine function of FLNR or should be the responsibility of the Ministry of Transportation and Infrastructure.

Beyond the end of the maintained resource road network, there is an extensive network of trails used by the recreating public. Many of these trails are non-status roads.[27] and there are many (tens of thousands of kilometres) un-authorized trails in BC. There can be problems associated with these

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[24] Many of these roads that extend beyond the end of the Ministry of Transportation and Infrastructure road system, although there are some systems of haul roads that do not connect with highways. Note that "the Forest Service" rarely builds roads anymore. Their capital projects sometimes involve 'rebuilding' or realigning existing roads.

[25] High Value Forest Recreation Sites and Trails as identified by FLNR Recreation Sites and Trails BC or identified as important recreational areas by the FLNR Regional Executive Director.

[26] Wilderness roads must be maintained to prevent damage to the environment but they may not be suitable for industrial (or any other) traffic.

[27] In addition, some of the 'trails' are forest service roads that are not plowed and are used by snowmobiles in the winter time.

trails. A 2008 Board audit of recreation management and enforcement in the Central Cariboo District,[liv] concluded that "there is a large network of unauthorized mountain bike trails. . . throughout the district that continue to pose a potential environmental risk as well as a public safety risk" and that there is "inherent difficulty in identifying parties responsible for unauthorized trail construction." Since then, there have been significant advances in the management of trails in BC.

In April 2013, government confirmed the Trails Strategy for BC as a key policy direction and approved implementing the strategy's recommendations, which are intended to lead to the development of a successful and sustainable world-class trail system that serves all types of users. There is currently an extensive network of just over 20 000 kilometres of trails either designated under section 56 or authorized under section 57 of FRPA..[28] Of that, there are just over 10 000 kilometres where there is a partnership agreement with someone[29] who is responsible for the maintenance of the trails under the *Forest Recreation Regulation*. It is the policy of the Recreation Sites and Trails Branch that all authorized and designated trails should be managed under a partnership agreement.

The issues outlined above that relate to certainty of access for rural residents and the recreating public also apply to those with commercial interests, such as adventure tourism and ranchers. In addition, the Board also heard of examples where industrial licensees (forestry, oil and gas, mining) with rights to construct, maintain and deactivate roads have adopted non-status roads being used by other commercial interests (examples included ranchers, trappers and guide outfitters). Those roads were improved to the standard required by the industrial licensees. Once they were finished with the road, it was deactivated, leaving the original commercial interest without the access they had enjoyed previously.

5 Tactical and Operational Management

In 2005, the Board concluded that there was a confusing patchwork of administrative responsibilities and legal requirements related to the tactical and operational management of road construction, use, maintenance and deactivation. A few of the issues identified in the Board's 2005 report have been resolved, but most remain.

5.1 Road Authorization and Standards

A principal issue identified in the Board's 2005 report was the fragmentation of responsibility for resource roads among a host of government agencies. Those responsibilities were administered under numerous different pieces of legislation. Since 2005, there have been some improvements.

One improvement was that, in 2011, government created the Ministry of Forests, Lands and Natural Resource Operations. This ministry consolidated the responsibilities for the administration of resource roads and access management that were previously in three different ministries (Forests and Range, Agriculture and Lands, and Environment). These responsibilities related not only to the authorization of resource roads but also to management of public use restrictions and the inventory of roads. Since then, government has been transitioning to a more integrated approach to natural

[28] Trails Strategy of BC also notes 9000 kilometres managed by municipalities, 1000 kilometres by regional districts, 7000 kilometres by BC Parks and 1000 kilometres by Parks Canada within BC.

[29] Including recreation clubs and societies, individuals, regional districts, First Nations and corporations.

resource management through subsequent initiatives, beginning with the Resource Management Coordination Project, then the Integrated Decision Making initiative, and now the current initiative – the Natural Resource Permitting Project..[lv] That project will not be fully implemented until 2020.

Another improvement was the implementation of the *Oil and Gas Activities Act* and the associated *Environmental Protection and Management Regulation* in 2010, and the *Oil and Gas Road Regulation* in 2013. This act consolidated legislation related to oil and gas roads and is a significant advance since the Board's 2005 report (previously there were four separate enactments related to oil and gas road authorization). The Board is pleased to see this improvement, which follows our recommendation made in 2002..[lvi]

Notwithstanding these improvements, significant issues still remain with fragmentation of agency responsibilities and legislation. FLNR, the OGC and the Ministry of Energy and Mines authorize roads, more-or-less in isolation of each other, principally under the authority of seven different pieces of legislation..[30] In some cases, there are legal regulations that set the standards for road construction, use, maintenance and deactivation. In other cases, these standards are set in the specific permit for the road or through a government policy. As noted in the Board's 2005 report, this "variety in authorization mechanisms for resource roads [continues] to cause confusion and inconsistency in requirements" and inequities among industries.

Issues arise because some industrial licensees are under no obligation to coordinate their road related activities or planning with other licensees in the same industry or with licensees in other industries. There was significant concern expressed to the Board by some public servants, and some in industry, that this lack of coordination is resulting in negative consequences, particularly higher road densities than necessary in some areas.

There is a general understanding that the proposed Natural Resource Roads Act will alleviate these issues[31] by harmonizing the existing legislation that currently applies to resource roads, to create a single administrative regime with uniform practice requirements and compliance and enforcement..[lvii]

5.2 Shared Use and Costs

Where there is more than one industrial user of a resource road, there is potential for conflict regarding the sharing of costs to maintain the road. This is nothing new. Disputes over sharing the costs of road maintenance have been around as long as there have been resource roads. The Board has reported on complaint investigations related to the topic in 1999.[lviii] and 2004.[lix] and the topic was discussed in the Board's 2005 report. A principal cause of the issue is that FRPA section 22.3 provides that a holder of a road permit or woodlot licence can require payment from another industrial user who wants to use the road,[32] but there are no rules to specify how that payment is to be determined..[33]

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[30] See Appendix 5 for details. Other agencies of government and other pieces of legislation can be involved depending on specific circumstances.

[31] The Board notes that the proposed Natural Resource Roads Act is not intended to be an access management planning tool.

[32] Similar provisions exist in section 21 of the *Oil and Gas Roads Regulation*.

[33] Note that section 22.3 provides that a road use permit holder can require payment only if regulations are in effect to do so—and they are not.

BC Timber Sales has developed a standard road maintenance agreement and a policy that describes how it should be applied.[lx] (although the legal enforceability of such a policy is in doubt). While this policy may have alleviated some of the issues, particularly in the southern interior, there continue to be considerable difficulties with shared maintenance costs in coastal BC..[lxi]

Throughout much of the central interior, there is a growing use of a different mechanism—forest road maintenance committees..[lxii] These committees are subsets of broader road management committees that, in addition to allocating shared maintenance costs, deal with liaison among interested parties (particularly from different agencies), road safety concerns and road maintenance details. Where these committees exist, they appear to be a workable solution.

There is a general expectation that the proposed Natural Resource Roads Act will provide a legal solution to this problem..[lxiii]

5.3 Deactivation and Wilderness Road Maintenance

There seems to be significant confusion about what is meant by *deactivation*, both in government and in the forest industry. For example, in a recent penalty determination,.[lxiv] a district manager continually references "seasonal deactivation," a term used in the *Forest Practices Code of British Columbia Act*, which is no longer applicable under FRPA. He should be referring to the maintenance of wilderness roads. During audits, the Board asks auditees to identify roads deactivated during the audit period. In recent audits, the Board has often found that roads identified as being deactivated are, in fact, being maintained as wilderness roads.

The requirements for deactivation of roads built by the forest industry are specified in sections 40 and 82(1) of the FPPR. The overall intent of road deactivation is to place roads in a self-maintaining state that will indefinitely protect the 11 FRPA values. This includes the requirement to stabilize the road prism and remove any structures (bridges or culverts) over streams. A barricade must prevent motor vehicle access (with the recognition that preventing all-terrain vehicle access is not possible in many cases) although exemptions from this requirement can be granted..[34] Deactivation is one of the ways a road permit holder can be relieved of their responsibility for a road (in the strictest legal sense, once a road has been deactivated it is no longer a road—even if it still provides access). The legal requirements for deactivation are results-based. Depending on how the deactivation is actually done, it can vary in effectiveness..[lxv] Board auditors note that deactivation is occurring less and less frequently and that most roads are maintained as wilderness roads.

Under section 81 of the FPPR, a wilderness road must be maintained "only to the extent necessary to ensure there is no material adverse effect on a forest resource,".[35] and there is no requirement that the road be safe for use by industrial users (or any non-industrial user, including members of the public). The state of roads being maintained as wilderness roads can be highly variable. In some cases, they simply will not have been graded nor had the snow removed. Roads that have been 'put to bed' seasonally or temporarily may have water bars and cross ditches installed to protect the road prism. In other cases, roads may be maintained as wilderness roads for such a long period of time that

[34] Similar specifications exist in Part 6 of the *Oil and Gas Roads Regulation*.

[35] So that the structural integrity of the road prism and clearing width are protected and the drainage systems of the road are functional

bridges may no longer be safe for use. The travelling public will often be notified that a road is a wilderness road with a sign. However, to many, the road may appear to be deactivated.

A large proportion of the roads authorized under forestry road permits are, at any given time, being maintained as wilderness roads (currently over three quarters—see section 3.1). There are several reasons why a road that is no longer being used for industrial purposes would be maintained as a wilderness road rather than deactivated:

- the holder of the road permit may want to re-enter the area at some time in the foreseeable future and sees value in continuing to maintain the road;
- access needs to be maintained for other purposes, such as meeting silvicultural obligations;
- there is strong demand by members of the public to keep the road open for recreational purposes; and/or
- the cost of deactivation is greater than the cost of wilderness road maintenance.

With respect to public use of resource roads, it is important to recognize that deactivation often does not end well-established vehicular use, particularly ORV use. In some cases, it may be prudent to undertake deactivation works that anticipate some level of continued motorized use until the road fully brushes in or consider re-designating the road as a recreation trail if appropriate. Perhaps a mechanism could be developed to enable this 'road to trail' transition that is less onerous than a FRPA section 56 designation, particularly for large networks of ORV trails/roads.

There are examples of problems where roads should have been deactivated, but for a variety of reasons, they were abandoned. Some of the structures associated with these roads (e.g., road prism, bridges and culverts) have subsequently failed, and may be creating undesirable environmental impacts (e.g., chronic sedimentation to streams). Proper deactivation of the roads is now prohibitively expensive because the road requires re-construction in order to get equipment in to effect the deactivation (e.g., Lizzie Lake Forest Service Road in the Sea-to-Sky District and the Golden Bear Mine Road in the Skeena-Stikine District).

5.4 Non-Status, Unknown-Status and On-Block Roads

There are about 100 000 kilometres of resource roads of unknown status (Figure 2). The vast majority of these roads are *non-status*—means no one, including government, is identified as being responsible for managing these roads. The level of ongoing environmental impacts these non-status roads may be causing is unknown.

Government staff told the Board that issues with these non-status roads should decline over time. There is some funding within FLNR to deactivate non-status roads that pose high safety or environmental risk, and some non-status roads will be converted to status roads when needed to support industrial or commercial uses. OGC staff said that in northeastern BC, there may be interest by some oil and gas companies in reducing the existing development footprint by rehabilitating non-status roads or older seismic lines in sensitive boreal caribou habitat areas to offset the footprint of newly proposed roads. However, the OGC can only authorize oil and gas activities and the *Oil and Gas Activities Act* does not define environmental offsets as an oil and gas activity, so there is no legal mechanism to enable this approach. The Environment Mitigation Policy.[lxvi] provides the framework for voluntary offsets, but mechanisms to ensure that those offset activities are enduring (i.e., not

subsequently tenured for another activity) can be complex and require coordinated planning or land designation.

About 240 000 kilometres of roads have been constructed on cutblocks under the authority of a cutting permit or timber sale licence (Figure 2). These roads will not be rehabilitated.[36] This amount **does not** include trails and other temporary access structures that will be rehabilitated.

FRPA requires that these roads on cutblocks be maintained until they have been deactivated.[37] Timber sale licence documents require the licence holder to deactivate roads on completion of harvesting, in accordance with FRPA deactivation requirements. These roads become non-status roads once the timber sale licence has expired. However, the Board found that the status of cutting permit roads is not clear. Once a cutting permit has expired, there is no ongoing authorization for these roads. Where a licensee has declared that the roads have been deactivated, the obligation for the road is removed,[38] but that declaration is not routinely made. From the Board's perspective, these roads will become de-facto non-status roads as the length of time from the expiry of the cutting permit increases.

In a small number of cases, work permits are issued under the *Land Act* for the construction of a road, but those permits expire and the road becomes non-status.

The Board estimates that non-status roads and roads on cutblocks cover about two percent of the timber harvesting landbase and an additional one percent is covered by other roads (mostly haul roads).[39] Virtually none of these roads will be actively rehabilitated, and as a result they will reduce the timber growing capacity of the landbase and represent a downward pressure on timber supply. Most current timber supply analyses assume that future roads will be twice the area of existing roads, so one might assume that a total of approximately six percent of the landbase will be affected by roads. This total is below the seven percent limit set by the FPPR for any given cutblock. Nevertheless, there is significant concern in some areas that far more of the roads being constructed are classified "permanent access" than should be, or is legally allowed by the definitions in the FPPR.[lxvii] This is particularly a concern in mountain pine beetle affected areas, where there is routine use of extensive in-block road networks associated with roadside work areas.

Road Rehabilitation

A rehabilitated road has all structures removed (including water bars and cross ditches), the road surface is loosened, surface re-contoured, and natural drainage patterns restored and trees planted (on forest land) to get roads back into forest production.

Road rehabilitation is an Association of BC Forest Professionals best practice for roads where there is a silvicultural obligation.

[36] They were either identified as gravel roads in the Digital Road Atlas or reported to RESULTS as *Non-Productive, Unnatural*.

[37] The maintenance obligation also ceases if the district manager gives notice that the road should not be deactivated due to use by other road users, or if another person or government assumes responsibility.

[38] After inspection by government officials or 15 months, whichever comes first.

[39] This estimate is for timber supply areas only. Neither the Board nor the general public have access to timber harvesting landbase information for tree farm licences. This limits our ability to provide complete, provincial scale commentary on some issues such as this one.

The fact that the roads on cutblocks reported to government are not rehabilitated does not conflict with the Association of BC Forest Professionals best practice because those are reported as permanent access structures and, as such, do not have silvicultural obligations.

Where these roads occur on steep slopes, they can cause landslides that further reduce the area of productive land and may damage streams that provide drinking water for people or habitat for fish. In southeastern BC, landslide frequencies increased by 10 times in areas with forest harvesting and 95 percent of those landslides were associated with roads.[lxviii] Issues with landslides are more frequent on steep slopes, and slopes over 60 percent gradient are typically considered to be at higher risk of landslides.[lxix] The Board estimates that over 10 percent (34 000 kilometres) of the non-status roads and roads on cutblocks occur in areas with slopes greater than 60 percent. Nearly 40 percent (121 000 kilometres) occur in areas with slopes greater than 30 percent.

By definition, non-status roads can provide unintended access. Particularly in areas with gentle terrain in BC's interior, non-status roads that have been deactivated can continue to be used by ORVs and even four-wheel drive vehicles. Many non-status roads are used by the public for recreation (e.g., ORV riding) or to access recreation areas or private land. They may also be used by non-industrial users to support a variety of tenured activity on Crown land such as mineral exploration, ranching and trapping. Some public and non-industrial users may do low levels of maintenance on the non-status roads they use—activities that do not require a permit. This access benefits the users, but can cause a variety of environmental, social and cultural impacts, such as unintended hunting and fishing pressure, access to sensitive wildlife areas (e.g., caribou and grizzly bear habitat), impacts on First Nations' traditional use of fish and wildlife, and conflicts between motorized and non-motorized backcountry recreation enthusiasts.

5.5 Damage to the Environment (FPPR Section 46)

The Board's 2005 report noted that there was no legal mechanism to prevent irresponsible recreational users from damaging the environment. This damage was almost always associated with ORV use. In 2007, section 46 of the FPPR was amended so that anyone, including recreational users, causing damage to the environment is guilty of an offence. Since 2007, the Board has investigated two complaints related to damage to the environment caused by recreational use of ORVs.[lxx] The Board concluded that the government needed to clarify how to apply section 46 of the FPPR and it needed to implement registration and licensing for ORVs, so that individuals damaging the environment could be more readily identified. In response to the second (2009) complaint report, the (then) Ministry of Forests and Range committed to preparing a bulletin that clarified the way in which section 46 of FRPA should be applied. That bulletin has not yet been published. Also in 2009, government began developing an Off-Road Vehicle Management Framework.[lxxi] In 2014, the *Off-Road Vehicle Act* was proclaimed. Off-road vehicles can now be registered voluntarily and mandatory registration will come into effect on June 1, 2015.

5.6 Safety

In 2005, coincidental with the publication of the Board's access report, there were a high number of fatalities and serious injuries in the forest sector—25 percent of which were related to vehicle accidents on resource roads. This prompted several developments related to safety. In 2006, the BC

Forest Safety Council established a Forest Safety Ombudsman, intended to be a safe, confidential and persuasive agent for the raising and review of safety concerns throughout the sector, and facilitating impartial and timely resolution of safety issues.[lxii] In 2008, the Forest Safety Ombudsman published a report on safety issues related to resource roads that contained 17 recommendations.[lxiii] Many of these recommendations have not been addressed or have only been partially addressed.

The Forest Safety Ombudsman recommended that road safety management groups be established throughout the province that would include representatives from industry, government and the public. In some areas, like the Quesnel Timber Supply Area, committees were already operating that could fulfill this role. Throughout the rest of the province, WorkSafe BC originally championed the formation of road user committees and they were created in many areas. However, WorkSafe BC is now only involved as a member of some committees.[40] The effectiveness and success of these committees varies across the province; some are doing well, others are struggling or have disappeared.[lxiv] The BC Forest Safety Council has taken up the challenge of making these committees a success, and there are examples of improvements in road safety as a result of these committees, but there are also problems. There is no funding specifically allocated for these committees, no generic terms of reference for the committees, and no formal requirement either for the committees to exist or for anyone to be a member of an existing committee.

The Forest Safety Ombudsman also recommended that "province-wide common signage, radio frequencies and radio protocols" be developed. Partly in response to this, and to the recommendations of a BC Coroner's inquest,[lxv] FLNR, in collaboration with Industry Canada, industrial stakeholders and others, embarked on a project intended to provide simplified, provincially consistent radio communications protocols and channels on resource roads.[lxvi] Pilot projects on Vancouver Island, the Sunshine Coast and in the South Peace involved standardized signage and calling protocols and a bank of standard radio channels. FLNR has found the pilot projects to be successful and is working with road user groups and Industry Canada to implement the protocols throughout BC. FLNR anticipates the majority of the Natural Resource Districts in the province will have adopted the new protocols and channels by the end of 2015 and the rest will not be far behind. Transitioning to new protocols and channels is challenging; all the road users need to be informed, signs need to be changed, users need to program new channels into their radios and then implement the new protocols. In transition, users are being advised to retain existing channels until they are sure they no longer require them and to exercise additional caution when travelling on resource roads.

Safety issues continue to be a concern both in the forest industry[lxvii] and the natural gas industry[lxviii] and are a critical concern for other commercial users of resource roads. The Forest Safety Ombudsman has recently said that there is little evidence to support the contention that you can legislate safety. He believes that a "change in culture" is required.[lxix]

There is growing use of resource roads by the general public, both to access rural residences and communities and recreation areas (including some BC Parks), and to use the roads themselves for recreation. These people rarely have radios that can communicate with industrial users. Often they are unaware of, or have unreal expectations about, the condition of the gravel roads they are using. It

[40] Likely because of the change in the *Occupational Health and Safety Regulation* that exempts resource roads from the definition of a "work place."

is often unclear who these people should contact to determine the condition of, and safety issues on, the roads. There are also continuing safety issues related to the use of off-road vehicles. The BC Coroner expressed concern in 2009 that deaths related to ORV use were a significant problem. Since then, there have been 70 fatalities involving ORVs.[lxxx] The government embarked on the development of an "Off-Road Vehicle Framework" in 2009 and it has recently passed a new *Off-Road Vehicle Act*, which contains provisions related to the safe use of those vehicles. Regulations bringing those provisions into force are expected on June 1, 2015..[lxxxi]

6 Summary and Conclusions

There is an enormous and growing legacy of resource roads in BC. The Board estimates that over 600 000 kilometres have been built (enough to drive from Vancouver to Halifax and back—50 times) and on the order of 10 000 kilometres is being added every year. The vast majority has been built by the forest industry (over 75 percent; possibly as much as 90 percent); much of the remainder has been built by the oil and gas industry in northeastern BC. A small amount has been built by other industries, notably the mining industry, and those roads can have significant impacts. Over half the resource roads are not being maintained by anyone. Much of that has been deactivated—with the intent of stabilizing the road so that maintenance is not required—but that deactivation is bound to fail in some cases, with the potential for environmental damage, and many of those roads continue to provide unintended access.

> **"To build a road is so much simpler than to think what the country really needs."**
>
> Aldo Leopold
> A Sand County Almanac
> 1949

There can be substantial benefits to resource roads—notably, they provide natural resource industries access to the places they work. These roads can benefit the public and First Nations by providing access to some rural communities and residences. They also can benefit the recreation sector (both public and commercial interests) and some other commercial interests (e.g., ranching, mineral exploration) by providing access to the back country. However, resource roads can have negative environmental effects such as landslides, siltation of streams, loss of wildlife habitat and unintended access.

There are long standing and significant issues with the management of resource roads that reduce government's ability to provide positive benefits and prevent negative effects of those roads. In 2005, the Board published the special report, *Access Management in British Columbia: Issues and Opportunities*, which concluded that, with respect to access management in BC there was:

- no comprehensive inventory of resource roads;
- very limited opportunities for public involvement in access management planning; and
- a confusing patchwork of administrative responsibilities and legal requirements for road construction, use, maintenance, and deactivation.

There has been little progress on these issues in the intervening 10 years.

6.1 Inventory and Information

Good information is a prerequisite for good management—this applies in general and it applies specifically to resource roads. Government needs good information to assess and manage the effects of roads (both positive and negative). Industrial users need good information to coordinate planning of construction, maintenance and deactivation with each other and with other commercial interests. The public needs good information so they can plan their activities and, to the extent available, be able to provide useful input to government and industry about access management issues.

In the Board's view, good information, at a minimum, would include current (up-to-date) maps of the locations of roads, showing who is responsible for the road (particularly with respect to maintenance) and some information about the condition of the road (what type of vehicle, if any, can use the road). Ideally, information about the current usage of the road (types and volumes of traffic), structures present (e.g., bridges, culverts), safety issues (e.g., known hazards, radio channels to be used) and future plans for the roads (when the maintenance will change, when the road will be deactivated) would also be provided. This information should be readily available to anyone.

Unfortunately, government does not provide even the good information described above, much less the ideal information. Government's map of the location of resource roads is substantially out of date for most of the province. Current information about forestry and oil and gas roads consists largely of records of permits to construct roads; NOT reports of actual roads built. For the oil and gas sector this situation will improve over time because there is a requirement to report the location of roads that are built or used by that sector. In the case of forestry, the situation has deteriorated—there was a requirement to report 'as built' roads from 2005 to 2008. In 2008 that requirement was removed and has not been re-instated. So for forestry, the largest builder of resource roads, the situation will continue to deteriorate.

Government is working to update its road map by interpreting satellite images and aerial photographs. The Resource Roads Update Program started in 2012 and about one third of the province is completed, with an expected completion date (of the first round) of July 2016. Government is in the process of developing a system for acquiring information about resource roads directly from all the licensees that build them. Implementation of this system relies on government passing the Natural Resource Roads Act and bringing it into force with regulations. In the meantime, those in government, industry and the general public with a stake in resource roads need useable information.

Government needs to be specific about what kinds of information it needs for what purposes and should set out to collect that information and make it publicly available. For strategic planning purposes over large areas (e.g., the cumulative effects framework), available information, cast in an appropriate format, may be a good beginning. In contrast, local people engaged in recreation need specific and current information about road locations and conditions. The format of this information should be consistent across the province, so people travelling to an area to recreate know how to get the information regardless of where they go in BC. The Board recognizes that the need for this information will be highly variable across the province and that providing timely and accurate information is challenging. The most suitable solution might be a website that allows collaborative editing of content (a wiki); both to enable government staff and to engage the public in providing current information about road location and status.

6.2 Strategic Access Management

There is no agency or group charged with the responsibility to conduct access planning. The Board's view is that government should bear this responsibility. It does not seem to be willing to do so. There has been no government led, multi-stakeholder access planning completed since 2009. Government provides encouragement to undertake local planning solutions, but offers virtually no support to do so, either financially or through enabling policies or legislation. In BC, there are virtually no proactive legal tools for setting access objectives. Consequently, industrial licensees are not required to address access issues in their planning (although in some cases, environmental assessment certificates require some form of access planning). There is no legal requirement to engage the public in access planning or to even consult or notify the public about changes in access. There are no formal mechanisms for resolving conflicts when they arise and there is little motivation for stakeholders to compromise. The result is that access decisions can become politicized.

The Board concludes that government should actively support local access planning initiatives based on multi-stakeholder participation. This support should be financial to the extent possible and include the provision of technical advice as requested. Where consensus is achieved, government should legally implement the recommendations of such initiatives.

The Board notes that the proposed Natural Resource Roads Act is not intended to solve these strategic access management issues. A partial solution may be a legal tool that enables government to set objectives for access over a prescribed area. That tool needs to enable the establishment and varying of objectives. It needs to apply to everyone—all industries and the public. Clearly, consultation with affected parties would be a prerequisite to the successful application of such a tool. It is the Board's view that a regulation bringing into force sections 93.1 and 93.3 of the *Land Act* would be a way to enable setting objective for access, as outlined above. This would allow the designation of contentious areas for the purpose of resolving land use conflicts and the establishment of objectives for those areas that could apply to everyone—all industries and the public.[41]

The Board suggests that, at a bare minimum, government needs to require a process of notifying the non-industrial users of resource roads in a timely manner about impending changes in status (new construction, changes in maintenance and deactivation).

In contrast to the lack of legal tools for proactive access planning, there is a long history of reactively restricting access through legal mechanisms. There are some very limited tools designed to restrict the building of resource roads, however the majority of the tools are used to restrict public access (usually to protect wildlife populations and habitat). The effectiveness of these tools varies substantially depending on whether there are physical barriers (gates) and whether the public has been engaged and educated. The Board notes that there is an innovative and apparently highly successful model for enforcement of public access restrictions in the East Kootenays known as the Access Guardian—a

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[41] *Land Act* (http://www.leg.bc.ca/37th4th/3rd_read/gov46-3.htm) 93.1 The Lieutenant Governor in Council by order may designate areas of Crown land for one or more of the following purposes:
(c) implementing a plan for a specified use of Crown land;
(d) resolving land use conflicts;
93.3 (1) For all or part of an area of Crown land designated for one or more purposes under section 93.1, the Lieutenant Governor in Council by order
(a) may establish objectives that are consistent with the designations under section 93.1

cooperative program between the Regional District of East Kootenay and the Conservation Officer Service—where a conservation officer is dedicated to backcountry education, public relations and enforcement of access restrictions.

One of the most difficult access management issues is that, where an industrial licensee has built or is maintaining a road, there can be no expectation on the part of other users of the road that access will continue once it is no longer needed by the licensee. This issue can affect the public engaged in backcountry recreation or living in remote rural communities, as well as a wide variety of commercial interests including adventure tourism operators, commercial trappers, ranchers and silviculture workers. Maintaining public access created by industry is not the routine responsibility of any government agency. FLNR has a program to maintain some access on forest service roads that serve communities, rural residences and high value recreation areas, but there is no formal mechanism for public input into that program.

The Board believes that much of this issue could be resolved by implementing the recommendation of the BC Forest Safety Ombudsman that:

> "The Province should establish a new public highway designation for resource roads that serve as the primary or secondary access roads for communities. The new designation would have clearly defined standards for construction, maintenance, enforcement and be funded/resourced similarly to the public highway system."[lxxxii]

Implementing this recommendation clearly requires public input. At a minimum, FLNR should post a policy for identifying what constitutes a community and a high value recreation site.

The Board heard opinions that there is a need to set objectives for road density, based on science, particularly in areas where grizzly bear and caribou populations are threatened. Unfortunately, the conclusions that science has come to about the effects of road density on these species almost always come with the caveat that the density of roads, *per se*, is not a particularly explanatory variable. What is more important is the density of various types of predator use and human use of those roads (particularly use of humans with guns). This information is simply not available in almost all cases.

6.3 Tactical and Operational Access Management

A principal issue with resource roads identified in the Board's 2005 report was the fragmentation of responsibility for those roads among a host of government agencies and the administration of those responsibilities under numerous different pieces of legislation. There have been some improvements since 2005, notably the creation of FLNR, which consolidated the responsibilities of three previous ministries, and the implementation of the *Oil and Gas Activities Act*, which consolidated four separate enactments related to road authorization.

However, significant issues remain—FLNR, the OGC and the Ministry of Energy and Mines all authorize roads, more-or-less in isolation of each other, under the authority of seven different pieces of legislation. This variety in authorization mechanisms for resource roads continues to cause confusion and inconsistency in requirements and inequities among industries.

Solving these tactical and operational problems through development of a single comprehensive piece of legislation has long been the 'holy grail' of resource road management. Legislation that meets these criteria have been in the works since before 1992..[lxxiii] In response to the Board's 2005 report government indicated that it was "expecting proclamation of the Resource Roads Act . . . in the fall of 2008."[lxxiv] A bill was introduced in the legislature in 2008 (Bill 30 – 2008, Resource Road Act[lxxv]) but that legislative session was prorogued and the act has not been re-introduced. The current version of this legislation (the Natural Resource Roads Act) has been under development since 2011..[lxxvi]

The Board is encouraged by government's Natural Resource Permitting Project and believes that it will provide solutions to some of the tactical and operation access management issues. However, work on that project has only just begun and the results will not be fully realized until 2020.

It is the Board's view that, until the comprehensive resource road legislation is passed and the Natural Resource Permitting Project is implemented, many of the tactical and operational issues related to resource road management could be resolved with minor regulatory changes and by development and application of clear policies, including inter-agency memoranda of understanding where conflicts arise about road management both within and among industries. The Board also suggests that government should more actively support and promote the work of local road management committees in their efforts to address tactical and operational issues related to maintenance, safety and cost sharing.

There is a need to educate both the general public and industrial licensees about what is meant by the distinction between a wilderness road and a deactivated road. The public needs to know what to expect when travelling on these two types of roads.

There is a significant potential for non-status roads and roads on cutblocks to be causing more negative effects than necessary. An inventory of these roads should be completed, including rating the risk of negative effects. With respect to road rehabilitation in the forestry context, there is a need for a clear distinction between temporary and permanent access and clear direction that temporary access is rehabilitated.

The Board is encouraged by the development of the Off-Road Vehicle Framework and the passing of the *Off Road Vehicle Act*. This act, once regulations are in force, will provide for safer use of these vehicles and will enable better enforcement of provisions in the FPPR, designed to prevent damage to the environment that can be caused by users of these vehicles.

The Board is also encouraged by a number of other improvements related to safety on resource roads including the appointment of a Forest Safety Ombudsman, the province wide formation of road safety management groups and the development and ongoing implementation of simplified, provincially consistent radio communications protocols and channels on resource roads.

7 Endnotes

URLs last accessed March 30, 2015.

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Appendix 1: Formal Interviews Conducted

Seventy-four people were involved in 37 interviews. Those interviewed represented the perspectives of the following organizations:

BC Cattlemen's Association
BC Environmental Assessment Office
BC Forest Safety Council
BC Oil and Gas Commission
BC Timber Sales (Access Working Group)
BC Wildlife Federation
Canadian Association of Petroleum Producers
Coast Forest Products Association
Council of Forest Industries
Federation of BC Woodlot Associations
First Nations Summit Task Group
FLNR Fish Passage Technical Working Group
FLNR Engineering Branch
FLNRO Land Tenure Branch
FLNRO Recreation Sites and Trails Branch
FLNRO Regional Resource Management (no web site)
FLNRO Resource Management Objectives Branch (no web site)
Mining Association of BC
Ministry of Environment Ecosystems Branch
Ministry of Transportation and Infrastructure
Organizing for Change
Outdoor Recreation Council
Truck Loggers Association
Union of BC Municipalities
United Steel Workers
Western Silvicultural Contractors' Association
Wilderness Tourism Association

Appendix 2: Method of Creating the Road Length Estimates

Spatial data was obtained from 11 different sources in government's BC Geographic Data Warehouse (BCGW) – as specified in Table A2.1 below. For each source used, the table specifies the definition query used (if any) to extract the relevant features and the attribute mapping used (if any) to classify the vectors. Each of the vector data sources was converted to two 100-metre rasters, one based on the attribute mapping and one based on the length of the segments within the raster cell. For the WHSE_FOREST_VEGETATION.RSLT_FOREST_COVER_INV_SVW and WHSE_FOREST_TENURE.FTEN_SPEC_USE_PERMIT_POLY_SVW (polygonal layers) the length of the road in each cell was estimated based on the average length of road per pixel in WHSE_BASEMAPPING.DRA_DGTL_ROAD_ATLAS_MPAR_SP (88.8 meters).

The resulting rasters were overlaid in the order (of precedence) shown in the table – i.e., MOTI roads on top. The final attribute was taken from the top most layer. The length of road was taken from WHSE_BASEMAPPING.DRA_DGTL_ROAD_ATLAS_MPAR_SP (first) or WHSE_BASEMAPPING.TRIM_TRANSPORTATION_LINES where they occurred. Where they did not occur, the length was taken from the length estimate for the layer itself.

The resulting road type and length layers were overlaid with a "status" layer formed by combining

- WHSE_FOREST_VEGETATION.F_OWN (a generalized ownership layer),
- WHSE_FOREST_VEGETATION.RSLT_OPENING_SVW where DENUDATION_1_DISTURBANCE_CODE IN ('L' , 'S') (a logging layer)
- WHSE_ADMIN_BOUNDARIES.FADM_TFL (showing tree farm licences)
- Feature Code EA16400120 (BC Hydro transmission lines) from the TRIM base map.

Lengths by road type and status were summarized.

Table A2.1. BCGW sources, definition queries and attribute mapping used to create the road map.

Source	WHSE_IMAGERY_AND_BASE_MAPS.MOT_ROAD_SURFACE_TYPE_SP	
Definition	any segment	
Attribute mapping	SURFACE_TYPE	OUTPUT
	Cold Mix	Paved
	Concrete	Paved
	Hot Mix	Paved
	Surface Treated	Paved
	Cleared	Gravel
	Dirt	Gravel
	Gravel	Gravel
	Uncleared	Gravel

Source	WHSE_MINERAL_TENURE.OG_PETRLM_DEV_ROADS_GOV_SP	
Definition	APPLICATION_STATUS IN ('APPROVED' , 'POSTCONST')	
Attribute mapping	PETRLM_DEVELOPMENT_ROAD_TYPE	OUTPUT
	HIGH	HIGH
	LOW	LOW
	WINTER	WINTER
	UNKN	UNKNOWN
Attribute mapping	DEACTIVATION_DATE	
	(IS NOT NULL)	DEACTIVE
Source	WHSE_MINERAL_TENURE.OG_PETRLM_ACCESS_ROADS_GOV_SP	
Definition	APPLICATION_STATUS IN ('APPROVED' , 'POSTCONST')	
Attribute mapping	PETRLM_DEVELOPMENT_ROAD_TYPE	OUTPUT
	HIGH	HIGH
	LOW	LOW
	WINTER	WINTER
Source	WHSE_MINERAL_TENURE.OG_PETRLM_DEV_RDS_PRE06_GOV_SP	
Definition	PETRLM_DEVELOPMENT_ROAD_STATUS = 'APPROVED'	
Attribute mapping	PETRLM_DEVELOPMENT_ROAD_TYPE	OUTPUT
	HIGH	HIGH
	LOW	LOW
	WINT	WINTER
	UNKN	UNKNOWN
Source	WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW	
Definition Query	LIFE_CYCLE_STATUS_CODE = 'ACTIVE'	
Attribute Mapping	FILE_TYPE_CODE	OUTPUT
	B01	Forest Service Road
	B40	Road Permit
	S01	SUP Other
	S02	SUP Forestry
Source	WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW	
Definition Query	LIFE_CYCLE_STATUS_CODE = 'RETIRED'	
Attribute Mapping	none - any segment	Gravel
note	FTEN ret: only include where there is no 'ACTIVE' segment on top = should equal deactivated - recently learned from Dona Stapely that this does not work	
Source	WHSE_FOREST_TENURE.ABR_ROAD_SECTION_LINE	
Definition Query	any segment	
Attribute Mapping	none - any segment	Gravel

Source	WHSE_FOREST_VEGETATION.RSLT_FOREST_COVER_INV_SVW	
Definition Query	STOCKING_STATUS_CODE = 'NP' AND STOCKING_TYPE_CODE IN ('RD' , 'UNN')	
Attribute Mapping	none - any polygon	Gravel
Source	**WHSE_FOREST_TENURE.FTEN_SPEC_USE_PERMIT_POLY_SVW**	
Definition Query	SPECIAL_USE_DESCRIPTION IN ('Road, Right of Way' , 'Transportation') and add manually 4 polygons where the SPECIAL_USE_DESCRIPTION = 'Miscellaneous Land Use' but are obviously roads	
Attribute Mapping	none - any polygon	Gravel
note	The Geographic Data Discovery Service (metadata) for this layer has a description of "A spatial representation for non-road special use permits". That description is incorrect. There are 132 (+4) records that are road permits in this dataset.	
Source	**WHSE_BASEMAPPING.DRA_DGTL_ROAD_ATLAS_MPAR_SP**	
Definition	ROAD_SURFACE <> 'boat'	
Attribute mapping	ROAD_SURFACE	OUTPUT
	decommissioned	Overgrown
	loose	Gravel
	overgrown	Overgrown
	paved	Paved
	rough	Gravel
	unknown	Gravel
Source	**WHSE_BASEMAPPING.TRIM_TRANSPORTATION_LINES**	
Definition	FCODE IN (list in attribute mapping below)	
Attribute mapping	FCODE	OUTPUT
	DA24900900	Gravel
	DA25000110	Gravel
	DA25000120	Gravel
	DA25000130	Gravel
	DA25000160	Gravel
	DA25000170	Gravel
	DA25000220	Gravel
	DA25050180	Paved
	DA25050190	Paved
	DA25050200	Paved
	DA25050310	Paved
	DA25050320	Paved
	DA25050330	Paved
	DA25100180	Paved
	DA25100190	Paved
	DA25100200	Paved
	DA25100210	Paved

	DA25100220	Paved
	DA25100320	Paved
	DA25100330	Paved
	DA25100340	Paved
	DA25100350	Paved
	DA25100360	Paved
	DA25100370	Paved
	DA25100380	Paved
	DA25100390	Paved
	DA25150000	Gravel
	DA25150100	Overgrown
	DA25150120	Overgrown
	DA25150140	Gravel
	DA25150150	Gravel
	DA25200000	Gravel
	DD31700000	Trail
	DD31700120	Trail

Appendix 3: Road Length Estimates

Table A3.1. Provincial estimates of roads lengths by responsibility (10 000 km)

Resource Roads	
Forest Industry Origin	
Roads on Cutblocks (Cutting Permits etc.)	24
Haul Roads, (Road Permit)	16
Deactivated Haul Roads	2
BCTS* managed Forest Service Roads (Haul Roads)	2
FLNR managed Forest Service Roads (see text)	4
Sub-total Forest Industry Origin	48
Oil and Gas Industry	2
Other (BC Hydro, Mining, etc.)	2
Unknown Status and Origin	10
Sub-total Resource Roads	62

Public and private land roads	
Highways and Rural Side Roads	6
Municipal Roads and Private Land Roads	10
In Provincial Parks	1
On Federally managed land	1
Sub-total public/private roads	18
Total Roads	**80**

*BC Timber Sales

Table A3.2. Estimates of road length (kilometres) by responsible authority and Natural Resource District. (This table is the basis of Table 1 in the main report)

	Forestry Authority					Other Identified "responsible authorities"							Roads on Cutblocks (in Table 1)				Unknown	
Natural Resource District	FSR[1] (FLNR and BCTS)	Road Permit[2]	Special Use Permit[3]	Deactivated[4]	Sub-total Forestry	MOTI[5]	Private & Municipal[6]	Oil & Gas[7]	Federal[8]	Provincial Park	BC Hydro[9]	Sub-Total Others	On TFLs[10]	On TSAs (reported to RESULTS)[11]	Woodlot & Community Forest[12]	Sub-Total	Unknown Status & Origin[13]	Total Roads[14]
100 Mile House	1,976	3,521	2	303	5,802	2,401	2,625	-	111	192	320	5,649	-	9,639	631	10,270	3,319	25,040
Campbell River	1,328	8,477	1	1,081	10,887	1,723	4,539	-	52	254	174	6,742	3,114	3,207	218	6,539	862	25,030
Cariboo-Chilcotin	3,491	13,103	23	824	17,440	3,385	4,051	-	1,313	683	248	9,680	1	21,808	1,855	23,664	10,590	61,374
Cascades	2,720	7,105	43	676	10,543	3,134	2,922	-	1,050	334	454	7,894	0	6,775	537	7,312	4,233	29,982
Chilliwack	2,126	3,291	11	1,594	7,022	2,522	14,267	-	315	395	234	17,734	99	2,494	194	2,786	874	28,416
Coast Mountains	1,692	2,870	113	942	5,617	1,141	1,430	95	128	126	178	3,099	1,742	4,058	288	6,087	1,243	16,046
Fort Nelson	92	1,649	84	796	2,621	1,083	449	9,371	218	646	113	11,880	-	7,535	25	7,559	16,617	38,677
Fort St. James	1,917	5,068	41	166	7,193	409	369	-	89	60	33	960	346	8,332	491	9,170	1,863	19,186
Haida Gwaii	531	2,681	139	311	3,662	191	203	-	136	104	-	634	996	430	1	1,426	480	6,202
Mackenzie	2,603	7,160	71	287	10,122	156	228	-	43	144	217	788	-	7,322	200	7,521	2,973	21,404
Nadina	2,916	7,410	36	401	10,762	1,461	1,535	73	68	161	114	3,412	-	10,810	1,592	12,403	2,205	28,782
North Island - Central Coast	1,734	10,679	27	2,120	14,560	528	390	-	57	241	15	1,231	2,378	1,631	292	4,301	648	20,739
Okanagan Shuswap	6,300	9,889	76	894	17,159	5,065	8,833	-	1,472	535	651	16,557	2,229	9,234	1,384	12,848	4,429	50,992
Peace	1,001	6,672	18	1,961	9,652	6,551	15,981	11,854	201	763	525	35,875	3,981	18,683	1,133	23,797	21,778	91,102
Prince George	3,807	11,245	10	1,205	16,267	3,118	6,568	15	88	917	377	11,084	2,689	23,807	1,846	28,342	4,591	60,284
Quesnel	2,130	9,410	6	581	12,127	1,885	2,812	-	127	165	151	5,139	3,572	13,050	956	17,578	3,199	38,044
Rocky Mountain	4,082	9,237	20	676	14,015	3,213	5,263	1	462	421	521	9,882	637	9,548	464	10,649	6,970	41,515
Sea to Sky	1,175	1,544	13	154	2,886	480	532	-	104	121	111	1,347	145	1,484	177	1,806	332	6,371
Selkirk	7,763	13,567	693	1,342	23,365	5,250	6,291	-	996	623	688	13,848	3,170	9,327	839	13,336	5,956	56,504
Skeena Stikine	1,877	3,071	198	203	5,348	2,528	1,508	-	275	716	85	5,112	-	5,385	390	5,774	5,548	21,783
South Island	897	5,512	42	647	7,097	4,374	15,657	-	369	196	419	21,015	2,102	793	252	3,147	1,036	32,296
Sunshine Coast	792	3,173	5	956	4,927	1,094	1,002	-	66	102	135	2,398	596	1,957	291	2,844	945	11,114
Thompson Rivers	5,408	10,658	19	713	16,798	3,388	3,172	-	511	610	418	8,099	847	8,479	770	10,096	4,617	39,609
Vanderhoof	1,468	4,255	-	580	6,303	1,413	3,073	31	136	193	106	4,952	-	9,007	352	9,359	1,483	22,097
Total	**59,826**	**161,249**	**1,690**	**19,411**	**242,176**	**56,495**	**103,699**	**21,441**	**8,387**	**8,701**	**6,287**	**205,010**	**28,645**	**194,793**	**15,177**	**238,614**	**106,791**	**792,591**

NOTES:

1 - Lengths are slightly longer (5% overall) than those shown in WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW because DRA length was used where it occurs under the permit.

2 - Lengths are slightly shorter (2% overall) than those shown in WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW because the data is from 2014/07/22 and new permits have been added.

3 - Contains SUPs in WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW and in WHSE_FOREST_TENURE.FTEN_SPEC_USE_PERMIT_POLY_SVW. Estimate for mines in Table 1 is this amount multiplied by 2.

4 - Estimate based on the length of retired road permits that have no active road permit over top. This also contains about 1000 km of deactivated OGAA road. Included in Table 1 as Roads on cutblocks.

5 - paved and gravel

6 - paved and gravel

7 - OGAA and predecessors

8 - Mostly Indian reserves and National Parks.

9 - Gravel roads directly under transmission lines. Table 1 estimate is 14,000 (Wayne Hagel Pers. Comm. 2014/10/16).

10 - Assumed to be from logging.

11 - Reported as logging to RESULTS estimated based on the average length per pixel of DRA and TRIM roads = 88.8 metres.

12 - Assumed to be from logging.

13 - Outside of reported logging. Larger than the amount in Table 1 because estimates for some BC hydro, mining and "other industries" (Land Act roads for IPPs, etc. 1750 km; based on Greg Kockx email 2014/11/14) are subtracted.

14 - Rounding up in Table 1 causes the estimate there to be 800,000.

AMOUNTS ARE REPORTED HERE TO THE NEAREST KILOMETRE SO THAT ROUNDING ERRORS ARE MINIMIZED - DO NOT USE THIS INFORMATION WITH THIS LEVEL OF PRECISION.

TOTALS IN SOME CATEGORIES MAY ONLY BE PRECISE TO THE NEAREST 10 000 KILOMETRES.

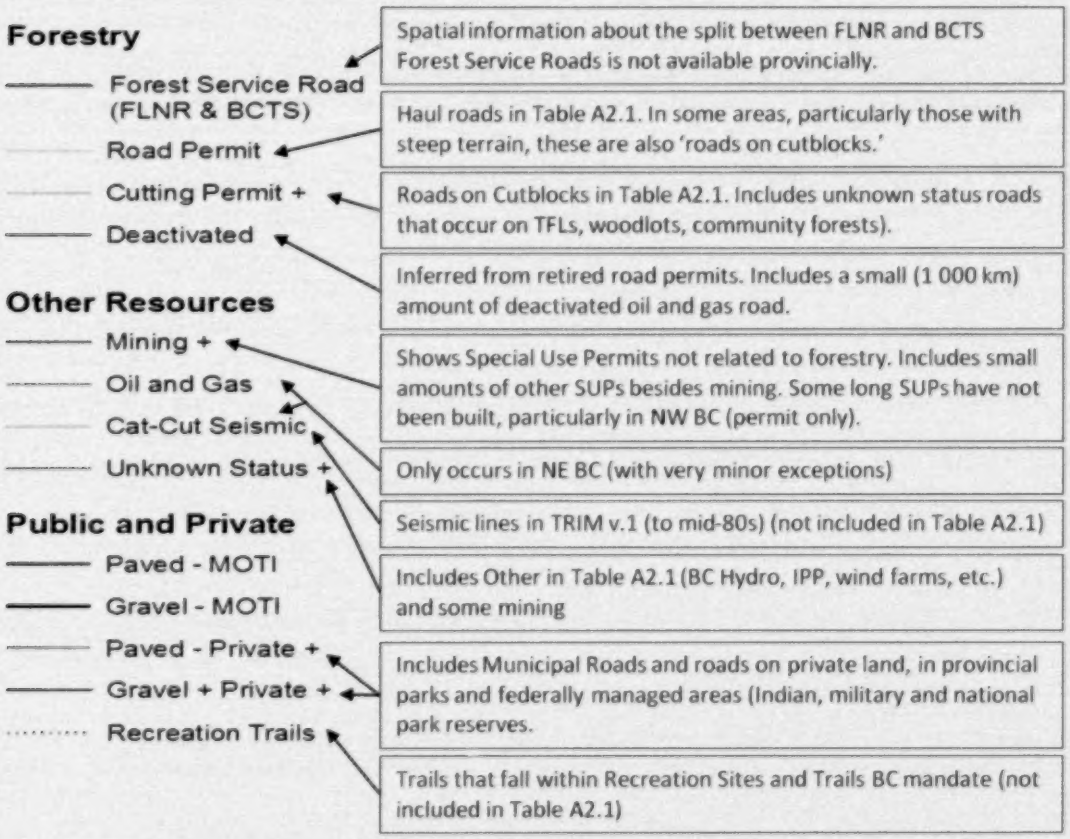
Appendix 4: Legend Information for Maps Provided

Two map series that support the report are available at:

- https://www.bcfpb.ca/sites/default/files/SR49-Tabloid-Key-Map.pdf (printable 11"x17" views of 7 selected areas)
- https://www.bcfpb.ca/sites/default/files/SR49-Over-Sized-Key-Map.pdf (3 very large sheets showing the province)

Notes attached to the legend indicate the relationship of the items with Table A2.1 in Appendix 2. This legend is meant to be used when viewing the oversized maps. It also appears on the 11x17" maps. The oversized maps are design to be viewed on screen – not to be printed. They are best viewed at 100 percent (1:400,000 on screen).

NOTE IN PARTICULAR: All the forest service road, road permit, deactivated, mining+, and oil and gas roads are all based on permits rather than actually constructed roads. Some may not have been constructed – others may have been constructed but the permit may not have been recorded. In particular, some very long special use permits, identified as "mining +" roads on the maps have NOT been built. An important example is the Tulsequah Chief Mine Road.


Forestry
Forest Service Road (FLNR & BCTS)
Road Permit
Cutting Permit +
Deactivated
Other Resources
Mining +
Oil and Gas
Cat-Cut Seismic
Unknown Status +
Public and Private
Paved - MOTI
Gravel - MOTI
Paved - Private +
Gravel + Private +
Recreation Trails
Spatial information about the split between FLNR and BCTS Forest Service Roads is not available provincially.
Haul roads in Table A2.1. In some areas, particularly those with steep terrain, these are also 'roads on cutblocks.'
Roads on Cutblocks in Table A2.1. Includes unknown status roads that occur on TFLs, woodlots, community forests).
Inferred from retired road permits. Includes a small (1 000 km) amount of deactivated oil and gas road.
Shows Special Use Permits not related to forestry. Includes small amounts of other SUPs besides mining. Some long SUPs have not been built, particularly in NW BC (permit only).
Only occurs in NE BC (with very minor exceptions)
Seismic lines in TRIM v.1 (to mid-80s) (not included in Table A2.1)
Includes Other in Table A2.1 (BC Hydro, IPP, wind farms, etc.) and some mining
Includes Municipal Roads and roads on private land, in provincial parks and federally managed areas (Indian, military and national park reserves.
Trails that fall within Recreation Sites and Trails BC mandate (not included in Table A2.1)

Forest Service Roads, the paved and gravel MOTI roads and the Recreation Trails are shown as lines. The remainder is shown as 100 meter raster cells.

Single line streams have been omitted for clarity. Data is current to 2014/07/22.

Appendix 5: Legislation Relevant to Resource Road Authorization and Standards

There is a complex suite of legislation and regulations in place to authorize the construction, maintenance, use and deactivation of resource roads on Crown land. The following general considerations are relevant to the issues identified in this report. Depending on the particular situation, other pieces of legislation, not discussed below, may also be important. For example:

- the *Industrial Roads Act* and associated *Part XX Vehicular Traffic on Industrial Roads Regulations* apply to all resource roads except forest service roads authorized under the *Forest Act*, roads previously built under the *Petroleum and Natural Gas Act*, and roads built under the *Hydro and Power Authority Act.*
- The *Occupiers Liability Act* applies to all resource roads.
- Many provisions of the *Motor Vehicle Act* apply to resource roads.

Forestry

Licensees with rights to harvest timber under the *Forest Act* must be authorized (with a road permit) to construct, maintain, use and deactivate a road on Crown land, given that the application conforms to the legislation. Cutting permits and timber sales licences authorized under the *Forest Act* allow the construction, maintenance, use and deactivation of roads within the boundaries of the applicable cut blocks. The *Forest and Range Practices Act* (FRPA) requires that a road authorized under the *Forest Act* (either with a road permit or a cutting permit) be maintained until the road is deactivated, or the road is taken over by another licensee or it becomes a forest service road.

Under the *Forest Act*, FLNR or BCTS can create a forest service road by building one or taking over responsibility for an existing road. An industrial user who wants to use a forest service road must obtain a road use permit from FLNR. Although public money is spent on forest service roads to address public use, they are not highways as specified in section 42 of FRPA.

Standards for roads are specified under the *Forest Planning and Practices Regulation* and *Forest Service Road Use Regulation* of FRPA.

Oil and Gas

Companies involved in oil and gas development are authorized to build, maintain, use and deactivate roads by the Oil and Gas Commission OGC through the *Oil and Gas Activities Act*. Standards for these roads are set under the *Oil and Gas Road Regulation* and the *Environmental Protection and Management Regulation*.

Mines

Roads on mineral tenures, claims and permits are authorized by the Ministry of Energy and Mines under either the *Mineral Tenure Act* or the *Coal Act*. The standards for the roads are specified by the Health, Safety and Reclamation Code for Mines in British Columbia 2008 (*Mines Act*).

Where road access is required over Crown land to reach a mineral tenure, both the *Mineral Tenure Act* and the *Coal Act* state that the tenure holder "must be issued a special use permit under the *Forest Practices Code of British Columbia Act* " (FPC of BC Act). The provision of special use permits (SUP) under the *Provincial Forest Use Regulation* is one of three remaining substantive parts of the FPC of BC Act. Standards for these roads are specified in the special use permit. In some cases, roads over Crown land to reach a mineral tenure are authorized under the *Land Act*

Other Industries

BC Hydro has the authority to build, use and maintain roads through sections 20 and 32 of the *Hydro and Power Authority Act*. BC Hydro has more-or-less unlimited authority with respect to roads under this act. Standards for the roads built by BC Hydro are set in policy.

Other industries, like independent power producers and wind farms, can obtain authority from FLNR to build roads under the *Land Act* or by a SUP. The standards for these roads are specified by the conditions of the SUP or the works permit, statutory right-of-way or licence of occupation issued under the *Land Act*. Authority to construct a road under the *Land Act* may also require a licence to cut under the *Forest Act* and authority to make "changes in and about a stream" under section 9 of the *Water Act.*

Environmental Assessment Certificates

Where roads are built for a project that has received an environmental assessment certificate under the authority of *Environmental Assessment Act*, the certificate can, and often does, place requirements on the construction, maintenance, use and deactivation of roads that are more stringent than the legislative requirements discussed above. These requirements can, and often do, include the requirement for an access management plan for the project.

Forest
Practices
Board

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